THE POTENTIAL FOR

ANTICIPATORY ACTION & DISASTER RISK FINANCE

Guiding the setting of humanitarian targets

ODI

START NETWORK

THE POTENTIAL FOR

ANTICIPATORY ACTION & DISASTER RISK FINANCE

Guiding the setting of humanitarian targets

CONTENTS

EXECUTIVE SUMMARY

This report contributes to the evidence base for scaling up anticipatory action and pre-arranged disaster risk finance. It offers an analysis of the opportunities within the humanitarian caseload to take action ahead of identified crises and provides recommendations for donors and policymakers to guide the setting of humanitarian targets for anticipatory action.

There is growing interest in proactive, risk-informed humanitarian action as a means to provide more timely, efficient and dignified assistance to communities at risk of crises.[1] Calls to scale up such approaches have emphasised the inadequacy of the current levels of funding for anticipatory action and pre-arranged crisis finance, and the importance of setting targets against which to measure progress. Nonetheless, there is significant variation amongst such targets, and in terms of what constitutes a realistic ambition.[2]

This raises the question of what appropriate targets could look like. In other words, within the crises that receive international assistance, what is the scope to put in place plans, financing, and where possible implement mitigative actions ahead of the event itself? This report builds on our previous research conducted in 2019 that estimated that over half of crises are somewhat predictable,[3] and offers a more nuanced understanding of what can be anticipated, and to which degree, within today's humanitarian caseload.

01 APPROACHES WITHIN SCOPE FOR THIS ANALYSIS

The focus of the report is on risk-informed humanitarian action, framed broadly as interventions taken ahead of a crisis in order to mitigate the impact of the crisis or improve the response. Within this, two key ways in which humanitarians take action ahead of crises are explored:

- **anticipatory action:** acting earlier in the evolution of a crisis to prevent or reduce humanitarian needs before they fully unfold; and/or

- **disaster risk finance:** meeting the costs of crises ahead of time to facilitate more predictable and timely assistance (can cover both anticipation and response).

The type of risk information needed for each of these approaches differs; for the former an actionable forecast of an emerging crisis, for the latter a baseline risk model that gives a statistical likelihood of the crises and average annual funding requirements. For this reason, in some crises it is possible to deploy both approaches in tandem, and in others just one approach or neither. These approaches sit in complement to wider disaster risk reduction and resilience building activities that tackle the systemic drivers of such crisis risks, which are outside of the present analysis.

02 LIMITATIONS OF ASSESSING 'GOOD ENOUGH' RISK INFORMATION AVAILABILITY FOR RISK-INFORMED ACTION

Risk-informed humanitarian action is based on models or forecasts of future crisis events that are necessarily uncertain, incur various trade-offs (for example between accuracy and lead times) and geographical variations. There are therefore clear limitations in taking a top-down view on whether risk information for certain categories of crises is likely to be 'good enough' for anticipatory action or pre-arranged finance.

Questions such as what constitutes a crisis, how impacts are felt by the most vulnerable and what the risk appetite

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1   IFRC, FAO, WFP, OCHA, Start Network (2022) *Enabling Anticipatory Action at Scale to Address the Challenge of the Climate Crisis.* Policy Brief for G7 Countries.
       Anticipatory Action Task Force (AATF)

2   For example, the Crisis Lookout Coalition has called for over half of crisis financing to be arranged in advance, while operational organisations such as the FAO and Start Network
       have set guided targets for anticipatory action of 15% and 18% of humanitarian funding respectively. The German Federal Foreign Office recently committed 5% of its humanitarian
       budget to be allocated in anticipation of crises, doubling the previous investments.

3   Weingärtner, L. and Spencer, A. (2019) *Mapping financial flows to humanitarian crises.* Financial flows mapping: The potential for a risk finance facility for civil society. Paper 1.
       London: ODI and Start Network.

is for mitigative actions can only be answered by those with detailed knowledge of exposure and vulnerabilities (national governments, local responders and at-risk communities themselves).[4] Therefore, whilst we can point to the availability of global risk information products to ascertain that some crises are more conducive to proactive approaches than others, coverage is not universal and their usefulness will vary depending on the contextual requirements and risk appetite of the implementers and communities at risk. This is an important limitation when considering the analysis presented below.

03 QUANTIFYING THE POTENTIAL FOR ANTICIPATORY ACTION AND DISASTER RISK FINANCING WITHIN THE HUMANITARIAN CASELOAD

Here, the analysis for the *potential* for deploying risk-informed approaches within parts of the existing humanitarian caseload is outlined, specifically focusing on past allocations of the Central Emergency Response Fund (CERF) Rapid Response and Start Fund mechanisms, which are dedicated to acute shocks and spikes in need (rather than annual funding for protracted crises). The analysis reveals:

A **The low-hanging fruit:** Close to one fifth (18%) of funding approved through CERF Rapid Response and the Start Fund between 2014 and 2021 was allocated to the types of crises for which there is already an operational baseline risk model in place in that country. During the same period, over a quarter (29%) was allocated to the types of crises for which there are examples of operational forecasting in the same country. This could be considered the low-hanging fruit for anticipatory action and/or pre-arranged disaster risk finance.

B **The potential for pre-arranged disaster risk finance:** Around 35% of CERF Rapid Response and Start Fund allocations over the same period were for meteorological, hydrological, climatological and geohazards. Experience tells us it should in principle be possible to generate a baseline risk model in order to pre-arrange disaster risk finance for most of these hazards. The remaining rapid response allocations went to societal hazards (e.g. conflict), epidemics and compound hazards which are harder to model.

C **The potential for anticipatory action:** The great majority (73%) of CERF Rapid Response and Start Fund allocations went to crises that experience tells us should in principle be possible to forecast and act upon early, albeit at varying lead times and levels of accuracy, as well as through different types of forecasting. Earthquakes, wildfires, landslides, some societal hazards, industrial/technological hazards and compound hazards were considered currently outside the potential for anticipatory action.

Emergency funds such as CERF and the Start Fund only constitute a small (and non-representative) share of overall humanitarian funding flows. Between 2014 and 2021, they allocated US$ 2.9 billion and US$ 101 million respectively in response to emergencies.[5] Nonetheless, their allocation data is useful as they focus specifically on responding to single, isolated shocks and spikes in need that are relevant to anticipatory action and disaster risk finance approaches. The vast majority (89%) of United Nations (UN) inter-agency coordinated humanitarian appeals funding goes to countries with year-on-year humanitarian response plans. Much of this is chronic (the needs are the same this year as they were last year) and requires continued, multi-year assistance. However, these appeals also include response to acute spikes in need that could be modelled – and events forecast – ahead of time. Due to the ways in which humanitarian funding data is tracked, spikes in chronic needs could not be isolated and quantified for the present analysis. For this reason, the analysis focuses on the smaller sub-set of CERF Rapid Response and Start Fund data.

04 IMPLICATIONS FOR THE SETTING OF TARGETS

We consider that basing targets simply on the low-hanging fruit of areas where there is already an operational baseline risk model and/or forecasting system in place in that locality is likely to be an underestimation of the potential for risk-informed humanitarian action. Similarly, assuming that the potential for such approaches to be realised in every locality is likely to be an overestimation.

**4** Klassen, S. (2021) *Information is power: Connecting local responders to the risk information that they need*. London: Start Network.

5 For comparison, over the same period, US$ 121.8 billion were committed to UN inter-agency coordinated humanitarian appeals alone; and there are vast public and private humanitarian funding flows beyond the UN process that are only partially captured in existing databases.

Therefore, Table 1 offers a range and a median for different combinations of situations where crises are – or are not – forecastable and modellable in a way that would support anticipatory action and disaster risk finance.
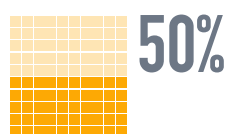
It is important to remember that this analysis only covers a small part of the overall humanitarian caseload, that we can confidently link to event-specific crises. Donors or policymakers setting targets may want to conduct their own analysis on how much of their funding goes to these types of event-specific crises or spikes in chronic contexts, using the methodology in this paper, to help define the potential for anticipatory action.

OUR ANALYSIS SUGGESTS THAT:
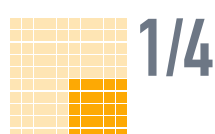
1/4

For around one fourth of the total volume of CERF Rapid Response and Start Fund allocations, it could be possible to model the risk and cost of the crises ahead of time and pre-arrange disaster risk finance.

50%

For around half of combined amounts allocated through CERF Rapid Response and Start Fund mechanisms it could in theory be possible to forecast the event ahead of time and act earlier in the evolution of the crisis to mitigate impacts.

<50%

For around less than half of the total value of allocations, the risk information is currently not available to facilitate these approaches.

TABLE 1

MODELLING & FORECASTING EXPERIENCE AND POTENTIAL IN CONTEXTS OF PAST CERF RAPID RESPONSE AND START FUND ALLOCATIONS

Analysis of CERF Rapid Response and Start Fund allocations, 2014-2021 (constant 2019 US$)	EVENT FORECASTABLE POTENTIAL FOR ANTICIPATORY ACTION	DIFFICULT TO FORECAST EVENT/ NON-FORECASTABLE PRESENTLY LIMITED POTENTIAL FOR ANTICIPATORY ACTION	
BASELINE RISK MODELLED POTENTIAL FOR PRE-ARRANGED DISASTER RISK FINANCE	**11%** to **32%** of funding allocated to crises that are potentially forecastable and modellable	**2%** to **7%** of funding allocated to crises that are potentially modellable but harder to access or operationalise a forecast	Potential for pre-arranged disaster risk finance (median): **27%**
BASELINE RISK HARDER TO MODEL PRESENTLY LIMITED POTENTIAL FOR PRE-ARRANGED DISASTER RISK FINANCE	**18%** to **41%** of funding allocated to crises that are potentially forecastable but harder to model	**24%** to **64%** of funding allocated crises that are challenging to both model and forecast	
	Potential for anticipatory action (median): **51%**		Potentially out of scope (median) **44%**

The potential for risk-informed humanitarian approaches as outlined above throws into relief the inadequacy of the 1-2% of all humanitarian funding currently being allocated ahead of identified crisis risks (whether through anticipatory action or pre-arranged disaster risk finance).[6] It is clear that there is scope to do much more, and to leverage the opportunities where risk information can be used for more than one purpose (anticipation and pre-arranged crisis financing, as well as risk reduction activities that sit outside of the present analysis).

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6   Weingärtner, L. and Spencer, A. (2019) *Mapping financial flows to humanitarian crises.* Financial flows mapping: The potential for a risk finance facility for civil society. Paper 1. London: ODI and Start Network.

Nonetheless, particular caution must be taken when interpreting the analysis above in the context of setting financial targets. If a crisis event is categorised as having potential to forecast and/or pre-arrange finance, it does not mean that the full budget for that crisis should go towards anticipatory action or be pre-arranged through disaster risk finance. This is particularly important when the anticipation window is a matter of days (which is common for cyclones, floods and heatwaves) thereby limiting the potential to absorb and deploy significant volumes of funding. In addition, with constant advances in science and technology, the scenarios and categorisations of crises in different geographies are constantly shifting and targets should be considered a moveable feast.

05 CONCLUSIONS

The challenge for the humanitarian community is to harness the science and technology that exists to allow us to predict and prepare ahead of escalating crisis risks, whilst also retaining the capacities to respond to highly complex, interconnected and/or unprecedented events. This paper intends to provide a clearer framework for understanding what can be anticipated, and to what degree. As anticipatory action gains momentum, it is important to have greater confidence in our calls for scaling up, accompanied by realistic and achievable targets.

As per the analysis presented, there is significant opportunity within the humanitarian caseload to take advantage of the existing operational risk information systems (the low-hanging fruit) as well as the wider potential for crisis risks not yet served by current operational systems. We hope that this paper will stimulate further efforts (perhaps within individual donors or operational agencies) to continue to quantify the gap between where we are today and where we should be, to strengthen the anticipation agenda.

To carry this forward, we provide a number of recommendations for donors and policymakers:

RECOMMENDATIONS

01
Scale up and diversify donor funding going to anticipatory action and pre-arranged crisis finance to maximise the potential for such approaches and accelerate efforts to track these financing flows.
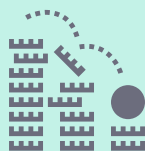
02
Support and encourage open risk modelling and sharing of evidence and learning on the strengths and limitations of risk information systems, not least from the perspective of implementers and communities.

03
Maximise opportunities for anticipatory action and disaster risk financing to be deployed in tandem and by diverse actors working together, ensuring that the value for money and effectiveness of joint approaches are not lost due to conflicts over organisational mandates.

04
Set realistic and achievable targets that consider current capabilities and limits of risk-informed humanitarian action, and that consider contextual variations and locally-led priorities.

05
Consider the role of development and climate portfolios alongside humanitarian funding when setting targets, to better reflect the nexus that this work falls within.

06
Support humanitarian agencies, particularly at the local level, to ensure operational readiness so that timely financing translates into faster and more effective support to at-risk communities.

01 INTRODUCTION

Women returning back to home after receiving hygiene kit, Start Fund Nepal.
© Start Fund Nepal

Human suffering is growing.

Every year climate and weather-related disasters force around 100 million people to seek protection and assistance and that number is expected to double within 30 years due to climate change.[7] In 2020, the number of people displaced by conflict was the highest on record since the Second World War.[8] Humanitarian resources, as well as adaptation efforts, are being vastly outpaced by humanitarian needs. There is increasing recognition in the humanitarian community that the climate crisis is also a humanitarian crisis.[9]

There is growing momentum behind a more systemic change from reacting to crises, to considering and acting on escalating crisis risks ahead of time.

The premise is such: in a world of increasing technological advances that allow us to forecast many crises, predict their impacts and monitor their emergence, it is no longer considered ethical, dignified or effective to delay action. As described by UN Under-Secretary-General for Humanitarian Affairs and Emergency Relief Coordinator, "the humanitarian system must be as anticipatory as possible, and only as reactive as necessary".[10] The efforts of the humanitarian community to anticipate and get ahead of crises have to date been characterised by initiatives across a spectrum of geographies and hazards, primarily driven by organisations such as the International Federation of Red Cross and Red Crescent Societies (IFRC), Start Network, The UN World Food Programme (WFP), The UN Food and Agriculture Organization (FAO), and the UN Office for the Coordination of Humanitarian Affairs (OCHA). Evidence from this work suggests that anticipatory approaches can be more effective, efficient and dignified.[11] In Bangladesh in 2020 for example, households who received cash transfers a few days before and during severe flooding were able to maintain higher levels of food consumption and wellbeing during and after the flood, compared to those not receiving the transfer. Critically, even small differences in timing were important, with households receiving the transfer earlier experiencing slightly greater welfare benefits.[12]

The result of such efforts is a growing interest in scaling up this type of approach.[13]

Scaling up could take many forms including expanding to new geographies and hazards, or integrating anticipatory action into existing delivery channels, ensuring risk-information is nationally owned and that processes are embedded in national and local disaster management policies, and changing conceptual frameworks from reactive to proactive.[14] An important part of scaling up is also the political commitment, including the policy, budgets and collaborations needed to make anticipatory action a core element of the humanitarian system and an integral part of disaster risk management plans.

1.1 THE IMPORTANCE OF SETTING TARGETS

The political economy of proactive crisis action is challenging.

There is little political reward for channelling funds to a crisis that is then averted or mitigated.[15] Conversely, there can be much more visibility and political kudos for generosity in the face of suffering during and after a crisis has emerged.[16] Proactive crisis management also requires a willingness to find new sources of funding or to allocate limited resources away from current urgent needs, towards needs that have not yet occurred. In other words, from a political perspective, a 'no regrets' approach to proactive crisis management can actually be considered 'high regrets' with potentially high political costs. New concepts of risk ownership and approaches

7 IFRC (2020) *Come heat or high water: Tackling the humanitarian impacts of the climate crisis together. World Disasters Report 2020.* Geneva: International Federation of Red Cross and Red Crescent Societies.

8 UNHCR (2021) *Global Trends: Forced Displacement in 2020*. Copenhagen: United Nations High Commissioner for Refugees, Statistics and Demographics Section. In part, this increase in conflict-related crises and displacement has been linked to the COVID-19 pandemic and its role in exacerbating underlying issues and vulnerabilities in some contexts, e.g. in a recent study by Mercy Corps, and according to observations made by the Start Fund. See for instance Mercy Corps (2021) *A Clash of Contagions: The Impact of COVID-19 on Conflict in Afghanistan, Colombia, and Nigeria.* Washington, D.C.: Mercy Corps.

9 UN (2021) *The climate crisis is a humanitarian crisis*. New York: United Nations.

10 UN (2021) *High-Level Humanitarian Event on Anticipatory Action: A Commitment to Act before Crises*. Co-chairs' statement. New York: United Nations.

11 IFRC, FAO, WFP, OCHA and Start Network (2022) *Enabling Anticipatory Action at Scale to Address the Challenge of the Climate Crisis*. Policy Brief for G7 Countries by the AATF.

12 Pople, A., Hill, R. V., Dercon, S. and Brunckhorst, B. (2021) *Anticipatory Cash Transfers in Climate Disaster Response*. Working paper 6. Centre for Disaster Protection: London.

13 UN (2021) *High-Level Humanitarian Event on Anticipatory Action: A Commitment to Act before Crises*. Co-chairs' statement. New York: United Nations.

14 Wilkinson, E., Weingärtner, L., Choularton, R., Bailey, M., Todd, M., Kniveton, D. and Cabot Venton, C. (2018) *Forecasting hazards, averting disasters: implementing forecast-based early action at scale*. London: ODI.

15 For an example of this dilemma, see Stephane Hallegatte's intervention at the International Women's Forum: *https://www.linkedin.com/feed/update/urn:li:activity:6922635040824733696/*.

16 Clarke, D. and Dercon, S. (2016) *Dull Disasters? How Planning Ahead Will Make a Difference*. New York: Oxford University Press.

to communication are required. These factors combined have limited the numbers of institutional donors that support such approaches, with the majority of initiatives historically supported and championed by the UK and Germany, while other governments have found it harder to commit.

In this context, setting collectively agreed targets for both anticipatory action and pre-arranged disaster risk finance is particularly important.

However, the targets that are currently in circulation vary considerably. Initiatives such as the Crisis Lookout Coalition have called for over half of crisis financing to be arranged in advance,[17] while operational organisations such as the FAO and Start Network have set guided targets for anticipatory action of 15% and 18% respectively of their humanitarian funding. Finally, the German Federal Foreign Office recently trailblazed by committing 5% of their humanitarian budget to be allocated to anticipation of crises, looking to triple their previous investments.[18]

1.2 THE OBJECTIVE OF THIS PAPER

The variation in targets raises the question of what an appropriate target for risk-informed humanitarian action should be. How can we know when we are reaching its full potential? Conversely, how do we avoid over-selling anticipation and pre-arranged finance approaches, potentially drawing resources away from other urgent needs?

As per a recent paper by the Insurance Development Forum, "most development decisions involve money, and in any sector it is inescapable that to finance risk you first have to quantify it".[19] This is the objective of this report; to attempt to quantify the potential for proactive risk-informed humanitarian approaches, by examining the risks within the humanitarian caseload and their degrees of 'predictability'. The goal is to build on our previous research in 2019 that estimated that over half of crises are somewhat predictable.[20] This paper will offer a more nuanced understanding of what can be anticipated, and to which degree, in ways that can facilitate concrete action to get ahead of crises, so as to assist with the setting of targets and political commitments to advance the anticipatory action and disaster risk finance agenda within the wider humanitarian system.

First a note of caution.

The focus of this paper is on a sub-set of official international humanitarian assistance, which is just one part of the financing landscape available to countries affected by crises. Other sources include debt, government budget re-allocations, non-humanitarian Official Development Assistance (ODA), remittance flows or other.[21] In particular, international humanitarian assistance delivered by the UN, Red Cross and Red Crescent and civil society sits alongside and in complement to the wider efforts of many sovereign governments working to be more financially prepared ahead of crises. Organisations like the World Bank and the regional development banks, as well as initiatives such as the InsuResilience Global Partnership are supporting this, with their own sets of targets. These efforts, often under the banner of disaster risk finance or climate and disaster risk finance and insurance, have a great deal in common with humanitarian efforts, and targets can and should be aligned to mutually reinforce each other.[22]

Secondly, this paper is not a detailed scientific investigation that can reveal the skill (effectiveness) of every risk model in every geography for every hazard. To provide something of utility to the setting of universal targets has required aggregating from what we know is possible or desirable and creating more simplified rules of thumb. This will undoubtedly result in simplified ways of thinking about risk and uncertainty. Further research on a more contextual basis is recommended to dig down into the conclusions offered by this paper.

17 Crisis Lookout (n.d.) *About the Crisis Lookout Coalition*. London: Centre for Disaster Protection.

18 GFFO (2021). Statement by Foreign Minister Heiko Maas at the High-Level Humanitarian Event on Anticipatory Action: Statement by Foreign Minister Heiko Maas at the High-Level Humanitarian Event on Anticipatory Action – Federal Foreign Office (auswaertiges-amt.de)

19 Moody, N., Fraser, S., Miles, K. and Schneider, J. (2020) *The Development Impact of Risk Analytics. A call to action for public and private collaboration*. Insurance Development Forum.

20 Weingärtner, L. and Spencer, A. (2019) *Mapping financial flows to humanitarian crises.* Financial flows mapping: The potential for a risk finance facility for civil society. Paper 1. London: ODI and Start Network.

21 ibid.

22 Montier, E., Harris, C. and Ranger, N. (2019) *Disaster risk financing in concert: How co-ordinated disaster risk financing can save more lives*. London: Start Network.

02 FROM REACTIVE TO PROACTIVE

Risk-informed approaches in scope for this analysis

Temporary cooling facility provided for the public by the Bright Star Development Society Balochistan, in response to the heat wave in Sibi, Balochistan, Pakistan
© GLOW Consultants, Bright Star Development Society Balochistan

Installation of an ecological pump in a collective garden during the growing phase in Guatemala, 2021
© ASECSA

This report adopts a broad definition of risk-informed and anticipatory action, but within this, it aims to provide clarity on the different approaches that can be adopted. This is considered important because there are differing uses of terminology and considerable confusion regarding the overlap and interchangeability of approaches. The aim of this section is to provide clarity on the approaches in scope for this analysis.

For the present report, the focus is on interventions taken ahead of a crisis in order to mitigate the impact of the crisis or improve the response. Such approaches bridge the gap between longer-term disaster risk reduction efforts and humanitarian crisis response, ensuring that plans, financing and where possible mitigative actions are implemented ahead of a crisis. The intended outcome is to ensure more timely and effective support that reduces human suffering and avoidable losses.

Historically, the humanitarian system has been primed to act on the basis of observed human suffering.

In practice, this means annual processes of calculating needs in protracted and chronic crisis contexts, as well as charitable appeals being prompted through the UN system, Red Cross or through individual Non-Governmental Organisations (NGOs) seeking to mobilise funds to respond once an acute crisis hits or escalates to the point that lives are being dramatically impacted. This approach, sometimes termed the 'begging bowl',[23] results in several systemic failures. Lengthy fundraising and humanitarian operational processes typically cause a gap of several weeks or months between the onset of a crisis and the delivery of assistance.[24] This leaves communities without assistance when they most need it, and results in missed opportunities for at-risk communities to protect themselves and their livelihoods at an earlier stage. Mobilising funds after a crisis also undermines planning and preparedness, as without certainty as to what funds will arrive and when, humanitarian organisations and at-risk communities are unable to play a meaningful and complementary role in national crisis management plans.[25]

To date, efforts to get ahead of emerging crisis risks have fallen into two main operational approaches:

acting earlier in the evolution of a crisis (anticipatory action) and/or meeting the costs of crises ahead of time (disaster risk finance). These tackle two of the failures in the 'begging bowl' approach referenced previously – the timing and the predictability of assistance. These approaches share a significant degree of overlap, and in some situations are even interchangeable, but differ in the objective that they are trying to achieve. In addition, the data requirements and therefore which crises can be anticipated and to what degree will vary depending on this intended objective. For this reason, and to ensure clarity in the analysis, the two approaches are explored below.

Finally, a great deal of the humanitarian caseload is chronic and somewhat cyclical in nature. It therefore requires other types of more predictable finance to respond, for example multi-year strategies and budget allocations, medium-term financing packages, etc.[26] The chronic caseload and approaches to address it reach beyond what is typically considered as anticipatory action and disaster risk finance. Whilst it remains important to consider risk-informed action in chronic humanitarian settings due to modellable spikes in need, we do not consider the ongoing chronic caseloads within the scope for setting targets for anticipatory action and pre-arranged disaster risk finance in our analysis (see also Chapter 4.1).

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23 Clarke, D. and Dercon, S. (2016) *Dull Disasters? How Planning Ahead Will Make a Difference*. New York: Oxford University Press.
24 Start Network (n.d.) *Start Fund: Filling a gap in the humanitarian sector*. London: Start Network.
25 Montier, E., Harris, C. and Ranger, N. (2019) *Disaster risk financing in concert: How co-ordinated disaster risk financing can save more lives*. London: Start Network.
26 Poole, L., Clarke, D. and Swithern, S. (2020) *The Future of Crisis Financing: A Call to Action*. Report. London: Centre for Disaster Protection.

2.1 EARLIER AND MORE TIMELY ACTION

The goal of anticipatory action is to act earlier in the context of an emerging crisis, to prevent or mitigate the crisis impacts.

Action is usually taken on the basis of a forecast ahead of a predicted crisis event, prior to it fully unfolding. The forecasts can be probabilistic assessments of the event itself, such as an upcoming subnormal rainy season, or made using real time monitoring data to forecast the likely impact on vulnerable communities.[27] For example, the Red Cross Red Crescent forecast-based early action system in Niger has two triggers, the first in April when rainfall is forecasted to be below normal for the next rainy season with at least 40% probability, and the second after the rainy season itself, based on observed crop performance and Integrated Food Security Phase Classification in anticipation of the likely impact on food insecurity.[28] The intended goal is to exploit these windows of opportunity in the evolution of a crisis, when the event itself, or the impact of the event, is yet to fully materialise. In the context of an upcoming drought, this can include supporting actions such as distribution of drought-resistance seeds or water capture activities, and in forecast of the food-insecurity itself actions such as protective cash-transfers or nutrition sensisation.[29]

Importantly for the present analysis, the triggers or thresholds for anticipatory action can be automated or more subjective in nature (sometimes called 'hard' or 'soft' triggers).

Automated triggers are more frequently used for events for which there is a fairly high degree of confidence with the forecast and its potential consequences, often achieved through significant upfront investment in risk information and trigger design.[30] An example of this is the Red Cross, WFP and OCHA flood anticipation system in Bangladesh, which uses triggers based off global modelling from the Global Flood Awareness System (GloFAS) as well as the Flood Forecasting and Warning Centre in Bangladesh.[31]

Softer triggers usually involve some form of expert opinion, these can be more opportunistic and open up opportunities for a wider range of crises to be anticipated, particularly for hazards or locations with less established forecasting capabilities.

For example, in 2020 Start Network rapidly launched the COVID-19 fund that combined information from forecasts such as the INFORM COVID-19 Risk Index, real-time monitoring by its members and inputs from a technical advisory group to translate alerts into action plans that were funded in less than 72 hours. This facilitated pre-emptive, fast, civil society action aimed at slowing the spread of the pandemic in the poorest and most vulnerable communities.[32] Expert or crowdsourced opinion has also been used to trigger anticipatory action ahead of potential election violence in Kenya[33] and Nigeria[34] and potential displacement from Afghanistan into Iran.[35]

The finance for anticipatory action is typically pre-arranged.

Short lead times and the uncertainty that characterises forecasts make it hard to raise funds when the event itself is unfolding.[36] Instead, existing mechanisms include dedicated contingency funds and funding windows such as forecast-based action within the IFRC Disaster Relief Emergency Fund (DREF), anticipatory capabilities of Start Network's Start Funds, anticipatory action through OCHA's Central Emergency Relief Fund and WFP's FoodSECuRE that have earmarked funds for such events. Some initiatives have also taken more sophisticated financial structuring to ensure availability of early action finance when it is needed, which are described in the next section.

27 Wilkinson, E., Weingärtner, L., Choularton, R., Bailey, M., Todd, M., Kniveton, D. and Cabot Venton, C. (2018) _Forecasting hazards, averting disasters: implementing forecast-based early action at scale_. London: ODI.
28 Anticipation Hub (n.d.) _Trigger database_. Accessed April 2022.
29 Start Network (2021) _ARC Replica payout. Senegal 2020 – internal evaluation_. London: Start Nework.
30 Lung, F. (2020) _Being timely: Creating good triggers and plans in disaster risk financing_. Guidance note. London: Centre for Disaster Protection.
31 OCHA (2020) _Anticipatory Humanitarian Action – Pilot: 2020 Monsoon floods in Bangladesh_. New York: OCHA.
32 Development Initiatives (2020) _Review of the Start Network's role in the current global response to COVID-19_. Bristol: Development Initiatives.
33 Start Network (2018) _Case study: Anticipating high stakes elections in Kenya in 2017_. London: Start Network.
34 Start Network (2020) _Case study: Anticipation of electoral violence in Nigeria_. London: Start Network.
35 Start Network (n.d.) _263 Afghanistan (anticipation of conflict and displacement). Start Fund Alert_. London: Start Network.
36 Bailey, R. (2012) _Famine Early Warning and Early Action: The Cost of Delay_. London: Chatham House.

Distribution of unconditional cash, non-food items, and water trucking to people affected by floods in Afgoye, Lower Shabelle region in Somalia. Start Fund Alert 463, 2020.
© Islamic Relief

2.2 IMPROVING FUNDING PREDICTABILITY THROUGH FINANCIAL PREPAREDNESS

A second approach to addressing challenges of timeliness and efficiency in the status quo of humanitarian funding consists of efforts to better plan to meet the costs of future crisis events, often coming under the term (climate and) disaster risk finance (and insurance), or sometimes referred to more loosely as pre-arranged crisis risk finance.

This approach was spearheaded by the work of institutions such as the World Bank working with sovereign governments to better manage the fiscal shocks caused by disasters by putting in place crisis management plans and financial protection strategies ahead of time.[37] These approaches aim to support governments to move from the 'begging bowl' approach of emergency borrowing after the event, towards ensuring availability of funding ahead of time using tools such as contingency reserves, risk pooling or risk transfer using insurance.[38]

In recent years, two key drivers have prompted the humanitarian community to begin piloting disaster risk finance approaches.

Firstly, anticipatory action has generated rich experiences of the benefits of quantifying risks ahead of time and pre-arranging finance, but also some of the limitations. Most of the anticipatory action systems described previously are not designed to trigger every year, which can mean that pre-arranged funding sits around unused. Conversely, a particularly bad year can quickly exhaust the reserves available, undermining the potential of the system to mitigate the impact of the crisis.[39] Secondly, a key driver comes from calls to broaden the capital base for humanitarian programming, and specifically to leverage the potential of capital markets to better support in managing escalating crisis shocks.[40]

37 World Bank (n.d.) _Disaster Risk Financing and Insurance (DRFI) Program_. Accessed May 2022.
38 Clarke, D. and Dercon, S. (2016) _Dull Disasters? How Planning Ahead Will Make a Difference_. New York: Oxford University Press.
    And _https://www.indexinsuranceforum.org/sites/default/files/Publikationen03_DRF_ACRI_DINA4_WEB_190617.pdf_
39 UK Government Actuary's Department (GAD) (2021) _International Federation of Red Cross and Red Crescent Societies' Forecast-based Action by the DREF_.
    Financing the forecast-based Early Action Protocols. London: Centre for Disaster Protection.
40 Airbel Impact Lab (2021) _From hype to impact. Defining and driving innovative finance for people affected by violent conflict_. New York: International Rescue Committee.

The result has been a growing number of humanitarian programmes that seek to implement not just earlier action, but also more predictable and scalable action by deploying more sophisticated pre-arranged finance.

An example of this is the Start Ready initiative by Start Network, which is currently holding pre-arranged finance for six anticipatory action systems, through a layered risk strategy that combines national reserves, pooling risks across countries and re-insurance to cover the risk of a bad year in which all of the countries draw down at once.[41] Through this strategy Start Network estimates that they can expand the reach of the pre-arranged finance that they have to protect three times as many people than holding those funds separately.[42] Similar approaches are starting to be explored by the IFRC DREF[43] and the International Rescue Committee,[44] lowering the opportunity cost of funds sitting around unused whilst retaining the ability to pay out when triggers are met.

Fundamental to disaster risk finance approaches is the ability to quantify and 'price' the risk of the crisis ahead of time. What this means in practice is using historical or simulated data on a hazard event, to generate a probabilistic risk estimation of the future.

In general, small events tend to happen more frequently, and larger events less frequently – this can be modelled on a statistical curve so that crisis managers can quantify the likelihood of different sized events happening in any one year and have a clearer picture on the funds that will be needed to respond. The likelihood of these events is often expressed as return periods, which refers to the average time between successive events of similar magnitude for a given location (for example a 1 in 5 year flood has a 20% chance of happening in any one year).[45]

Automated or 'hard' triggers are important to allow for the disbursement of predictable pre-agreed funds, and to facilitate use of tools like insurance that could otherwise be subject to manipulation.

For example, the insurer will use the modelled probability of the event (as described above) to calculate the cost of an annual premium that is paid to ensure availability of the finance when needed. This approach was used by the Danish Red Cross and insurance partners in developing a Volcano Catastrophe Bond, which will release rapid funds for action to provide support to communities at risk of an eruption. The trigger is the column height of the ash plume, which is 'third party verifiable' and therefore suitable for insurance purposes.[46]

2.3 INTERSECTIONS AND COMPLEMENTARITY

As described above, anticipatory action and disaster risk finance approaches both aim to tackle the reactive approach to crises by taking action to predict and prepare for crisis risks ahead of time.

However, they differ slightly in their goals and therefore in the risk information that is needed to fulfil the approach. These are summarised in Figure 1.

In some crises it is possible to deploy both approaches in tandem, and in others just one approach or neither.

The necessary component parts that enable this to happen effectively include not just data requirements but also for them to be embedded in national and/or locally-led structures and crisis risk management strategies, extensive planning together with at-risk communities and willingness of donors to commit pre-arranged financing, which are well documented elsewhere.[47] Nevertheless, in all these efforts the risk information available is a key limiting factor, regardless of levels of effort or investment. For this reason, the focus of the following sections is on the data and information aspects that vary between crises, as a key limiting factor for the scale-up of the two approaches described and the setting of targets.

41 Start Network (n.d.) Start Fund: *Start Ready*. London: Start Network.

42 Start Network direct communication.

43 UK Government Actuary's Department (GAD) (2021) *International Federation of Red Cross and Red Crescent Societies' Forecast-based Action by the DREF*. Financing the forecast-based Early Action Protocols. London: Centre for Disaster Protection.

44 Airbel Impact Lab (2021) *From hype to impact. Defining and driving innovative finance for people affected by violent conflict*. New York: International Rescue Committee.

45 Hagenlocher, M., Cotti, D., Cissé, J.D., Garschagen, M., Harb, M., Kaiser, D., Kreft, S., Reith, J., Seifert, V., Sett, D., Zwick, A. (2020) *Disaster risk and readiness for insurance solutions in small island developing states*. Report No. 26. Bonn: United Nations University Institute for Environment and Human Security (UNU-EHS).

46 Danish Red Cross (2021) *Volcano Catastrophe Bond – Danish Red Cross, Replexus, Mitiga Solutions, Howden – Placed March 2021*. Video. Accessed April 2022.

47 For an operational example see: Red Cross Red Crescent Climate Centre, IFRC and German Red Cross (2022) *FbF Practitioners Manual. A step-by-step approach for FbF implementation*. For a policy perspective see: Tanner, T., Gray, B., Guigma, K., Iqbal, J., Levine, S., MacLeod, D., Nahar, K., Rejve, K. and Cabot Venton, C. (2019) *Scaling up early action: Lessons, challenges and future potential in Bangladesh*. ODI Working paper 547. London: ODI.w

RISK-INFORMED HUMANITARIAN ACTION: APPROACHES AND RISK INFORMATION REQUIREMENTS

RISK-INFORMED HUMANITARIAN ACTION
APPROACHES AND RISK INFORMATION REQUIREMENTS

OUTCOME

EARLIER ACTION
in the evolution of a crisis; to support communities to prevent or mitigate crisis impacts.

MORE PREDICTABLE AND PLANNED ACTION
by meeting the costs of crises ahead of time.

SPECIFIC RISK INFORMATION REQUIREMENTS

EVENT FORECASTS
that can tell us when crises are imminent and their likely impact.

Triggers can be both 'hard' and 'soft' (automated versus based on expert assessment).

Timing of trigger is before event itself or impact of event is felt.

BASELINE RISK MODELLING
to quantify and cost the likelihood of crises.

Triggers are 'hard' to generate a statistical probability of the event.

Timing can either be before the event (based on a forecast) or after it occurs.

WHAT DO WE NEED

DATA
on Crisis Risks that allows us to understand and monitor crises and predict their likely impact on communities at risk.

PLANNING
Plans and protocols in place that outline the actions needed to mitigate and/or respond effectively to the crisis.

FINANCE
Funding organised ahead of time that can release rapidly to put plans into action.

PROBLEM

TIMING
We see crises emerging, and yet the system only reacts when it is too late and lives and livelihoods have already been lost.

PREDICTABILITY
We have data to tell us when and where many crises are likely to occur and yet we wait to raise funds after they occur, this is slow, inefficient and inhibits planning and preparedness.

FORECAST-BASED ANTICIPATORY ACTION

DISASTER RISK FINANCE

START NETWORK

03 LIMITATIONS OF TRYING TO ASSESS 'GOOD ENOUGH' RISK INFORMATION AVAILABILITY

Emergency Response to Support Flood Affected Vulnerable Households in Koch and Rubkona Counties in Unity State, South Sudan, Start Fund Alert 543, 2021
© Age International

Proactive, risk-informed humanitarian action is based on a risk model and/or forecast of an imminent or future crisis event, and therefore relies on information that attempts to model the near future.

Consequently, there will always be some uncertainty in the model or forecast as 100% certainty can only be achieved once the event has already happened. Therefore, this approach requires actors to navigate this uncertainty and take decisions on the basis of probabilities.[48] Such approaches come at a cost; whether pre-arranging finance in the form of an insurance premium or releasing funds for mitigative actions, scarce and much needed humanitarian funds are used.

In theory, it would be possible to try to model and anticipate every possible crisis event, but the likelihood is that this would not be achievable to a degree of certainty or skill that would warrant anticipatory action.

The question of whether a crisis can be anticipated is therefore less of a yes or no answer, and more of a sliding scale depending on the risk appetite of decision-makers who are accountable to populations at risk.

There are significant limitations inherent in a top-down methodological approach, such as the one taken by this study, that makes assumptions about the risk information available in different kinds of crises and the extent to which anticipatory approaches could be applied. These limitations are explored below.

3.1 DEFINING THE CRISIS EVENT

A hazard does not in itself constitute a humanitarian crisis. It is the interaction of that potential event with the exposure, strengths and vulnerabilities of communities that generates disaster risk.

Policies and power dynamics that favour or marginalise people and put certain people at risk also have a bearing on impacts. For example, what constitutes a damaging flood varies significantly between countries and even between communities living in the same river basin. One community may consider floods that cause significant mortality of livestock as a key concern, whereas for others it may be damage to infrastructure that limits their access to markets.[49] There is no single definition of a flood-induced crisis and therefore no single view on the most appropriate model to capture this.

When evaluating whether risk information is sufficient to generate a forecast or likelihood of a potential crisis, there are two key types of uncertainty; primary uncertainty in capturing the event itself (such as rising water levels) and secondary uncertainty in how the event will manifest and the impact it will cause (such as the effects on livestock).[50]

The primary uncertainty is somewhat lower in crises driven by hazards that follow physical principles that have been successfully modelled.

These include "hydraulic models for flooding; weather models for hydrometeorological hazards; plume models for volcanic ash deposition; fluids models for volcanic pyroclastic flows and lahars, as well as tsunamis; granular flow models for snow avalanches and landslides; and elastic wave models for earthquakes".[51] Many of these are covered by freely available products from international and regional forecasting centres, as well as some national hydrological and meteorological services.[52] More and more, probabilistic risk models addressing these types of hazards, e.g. catastrophe modelling originally developed through the insurance sector, are being used by the public sector, particularly by development banks. The private sector is also increasingly modelling such risks for emerging insurance markets.

48 Start Network (2018) *Navigating uncertainty: An approach for Start Fund decision-makers*. London: Start Network.
49 Harrowsmith, M., Nielsen, M., Jaime, C., Coughlan de Perez, E., Uprety, M., Johnson, C., van den Homberg, M., Tijssen, A., Mulvihill Page, E., Lux, S. and Comment, T. (2020) *The future of forecasts: impact-based forecasting for early action*. Asia Regional Resilience to a Changing Climate (ARRCC), Met Office, Red Cross Red Crescent Climate Centre, FCDO, Anticipation Hub and Risk-informed Early Action Partnership (REAP).
50 Guin, J., (2010) *Understanding Uncertainty*. AIR Currents, 16 March.
51 Hill, L. J., Sparks, R. S. J. and Rougier, J. C. (2013) *Risk assessment and uncertainty in natural hazards*. In: Rougier, J. C., Sparks, R. S. J. and Hill, L. J. (eds.) Risk and uncertainty assessment for natural hazards. Cambridge: Cambridge University Press.
52 Wilkinson, E., Weingärtner, L., Choularton, R., Bailey, M., Todd, M., Kniveton, D. and Cabot Venton, C. (2018) *Forecasting hazards, averting disasters: implementing forecast-based early action at scale*. London: ODI.

Nonetheless, for some crises such as drought-induced food insecurity, the attribution between the hazard and the crisis can be complex.

Metrics to capture the hazard itself can differ between measures of rainfall, soil moisture, Water Requirement Satisfaction Index (WRSI) or the Normalised Difference Vegetation Index (NDVI). In some instances, metrics of the crisis outcome have been used to trigger anticipatory action instead, e.g. projections of food insecurity in the 2020 CERF anticipatory action pilot in Somalia. In this case, the framework did not include a drought-specific trigger, and when the food security threshold was reached for the first time, this was due to other threats, primarily a combination of COVID-19, locusts and flooding.[53] What constitutes the 'best' metric will vary according to the region and climate.[54] In addition, even with perfect knowledge of metrics like rainfall, there is a much larger substantial secondary uncertainty as the range of food security outcomes can be very wide,[55] for instance depending on whether communities are already managing or recovering from other shocks.

The result is that clarity on the crisis event itself, ideally as defined by vulnerable communities themselves, is critical in determining the nature of the risk information required, which will inevitably vary by region and sometimes even by community.

Some hazards are easier to model than others due to their following physical laws, but there is no single 'best' risk model or forecast; its skills must be evaluated in relation to its ability to capture the locally-defined priority risk factors that constitute a humanitarian crisis. This is hard to assess on a global/universal level.

3.2 LEAD TIMES AND SPATIAL DISTRIBUTIONS

For anticipatory action, a particularly important consideration as to whether a crisis can be anticipated early enough is the lead time available to carry out effective actions between the forecast and the onset of the crisis.

In advance of a crisis onset, there are windows of opportunity for different anticipatory actions. For example, in a conflict this may include prepositioning supplies to cover the basic needs of displaced people, preparing cash transfers and vouchers for internally displaced persons, creating safe spaces, or establishing preventive diplomacy and mediation channels that can be activated in cases of political crises and electoral violence.[56] Some anticipatory activities require more time to implement than others, which will influence the choice of trigger and lead time before the event. Similarly, some of the actions that can be undertaken in anticipation of a crisis to mitigate impacts clearly fall within the mandates of humanitarian agencies, while others may require collaboration with development, climate or security stakeholders. This may also influence the lead time required to implement activities.

Lead time is closely interwoven with the certainty of the forecast; typically the closer the onset of the crisis, the greater the certainty.

In addition, longer-range forecasts tend to have coarser spatial resolution. For example, seasonal forecasts are more often used for anticipating crises like droughts with wider geographical impacts than flash floods with more localised impacts.[57] This therefore incurs a necessary trade-off between having sufficient confidence in the forecast to release funds for targeted mitigative activities and having enough time to implement the activities. Even for the same hazard some contexts/locations will have a lesser lead time and, in some contexts, forecast-based actions may not be feasible (e.g. a flood in a small, very reactive catchment with little time between rainfall and flash flood versus a large catchment where it takes days for a flood wave to travel from the upper to lower reaches).

53 Gettliffe, E. (2021) *UN OCHA anticipatory action. Lessons from the 2020 Somalia pilot.* Working paper 9. London: Centre for Disaster Protection.
54 Moody, N., Fraser, S., Miles, K. and Schneider, J. (2020) *The Development Impact of Risk Analytics. A call to action for public and private collaboration.* Insurance Development Forum.
55 Coughlan de Perez, E., van Aalst, M., Choularton, R., van den Hurk, B., Mason, S., Nissan, H. and Schwager, S., (2019) *From rain to famine: assessing the utility of rainfall observations and seasonal forecasts to anticipate food insecurity in East Africa.* Food Security, 11: 57–68.
56 Wagner, M. and Jaime, C. (2020) *An agenda for expanding forecast-based action to situations of conflict.* Berlin: Global Public Policy Institute (GPPi).
57 See: Anticipation Hub (n.d.) *Trigger database.* Accessed April 2022; and Wilkinson, E., Weingärtner, L., Choularton, R., Bailey, M., Todd, M., Kniveton, D. and Cabot Venton, C. (2018) *Forecasting hazards, averting disasters: implementing forecast-based early action at scale.* London: ODI.
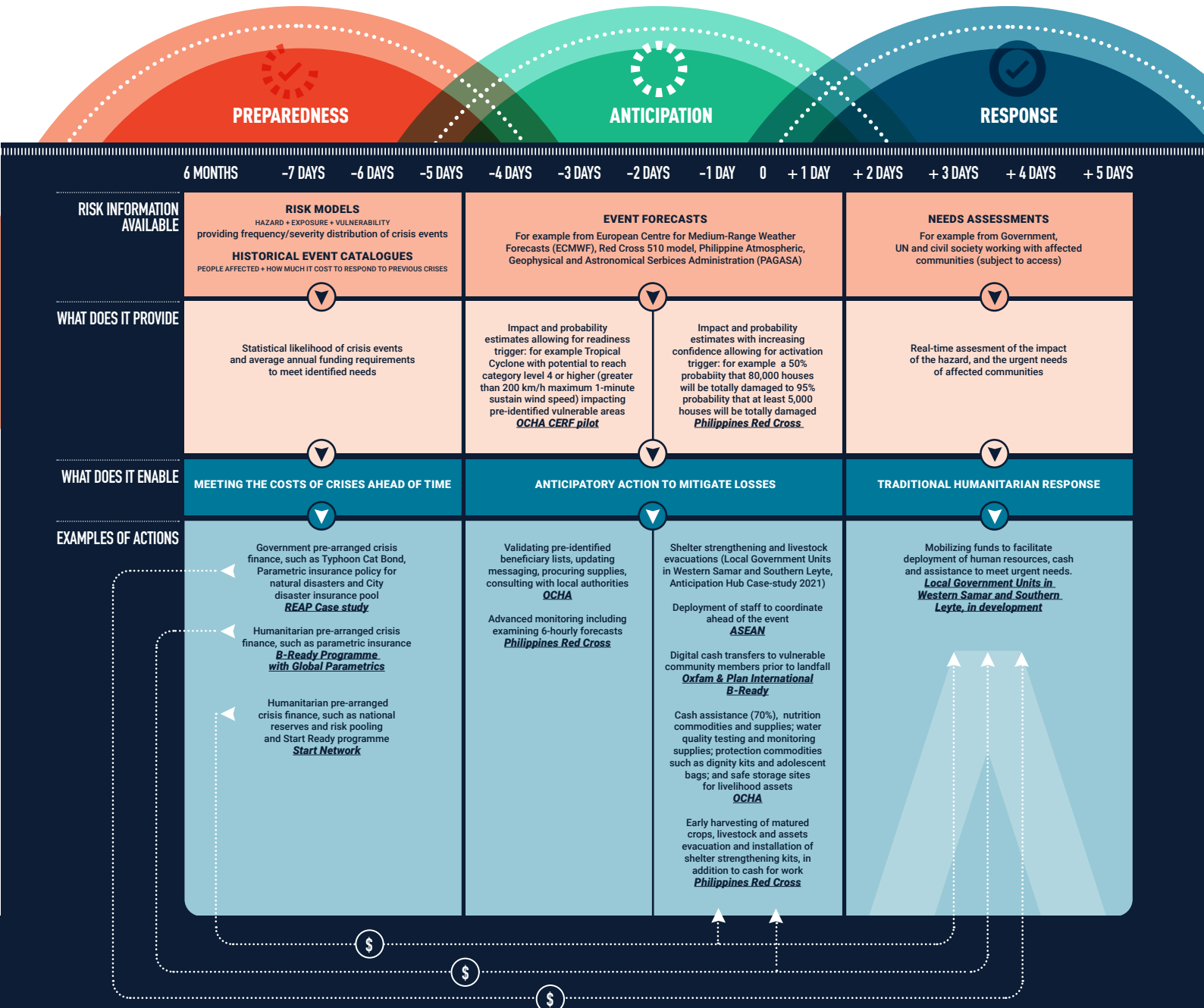
The certainty/lead time trade-off is often managed by having two triggers: a seasonal preparedness or readiness trigger for lower cost type actions such as monitoring, information dissemination and preparing beneficiary lists, and a later trigger for more cost-intensive activities such as distributing cash or supplies.

This is illustrated in Figure 2, which outlines examples from the Philippines of the risk information available at different points of a tropical storm and real-life activities that are implemented by different actors on the ground.

FIGURE 2 TIMELINE OF AVAILABLE CRISIS DATA AND OPERATIONAL EXAMPLES OF ANTICIPATORY ACTION AND PRE-ARRANGED DISASTER RISK FINANCE: PHILIPPINES TROPICAL STORM

PHILIPPINES TROPICAL STORMS
TIMELINE OF AVAILABLE CRISIS DATA AND EXAMPLES OF ANTICIPATORY ACTION AND PRE-ARRANGED DISASTER RISK FINANCE

PREPAREDNESS — **ANTICIPATION** — **RESPONSE**

	6 MONTHS	−7 DAYS	−6 DAYS	−5 DAYS	−4 DAYS	−3 DAYS	−2 DAYS	−1 DAY	0	+ 1 DAY	+ 2 DAYS	+ 3 DAYS	+ 4 DAYS	+ 5 DAYS

RISK INFORMATION AVAILABLE

- **RISK MODELS** — HAZARD + EXPOSURE + VULNERABILITY — providing frequency/severity distribution of crisis events
- **HISTORICAL EVENT CATALOGUES** — PEOPLE AFFECTED + HOW MUCH IT COST TO RESPOND TO PREVIOUS CRISES
- **EVENT FORECASTS** — For example from European Centre for Medium-Range Weather Forecasts (ECMWF), Red Cross 510 model, Philippine Atmospheric, Geophysical and Astronomical Serbices Administration (PAGASA)
- **NEEDS ASSESSMENTS** — For example from Government, UN and civil society working with affected communities (subject to access)

WHAT DOES IT PROVIDE

- Statistical likelihood of crisis events and average annual funding requirements to meet identified needs
- Impact and probability estimates allowing for readiness trigger: for example Tropical Cyclone with potential to reach category level 4 or higher (greater than 200 km/h maximum 1-minute sustain wind speed) impacting pre-identified vulnerable areas **OCHA CERF pilot**
- Impact and probability estimates with increasing confidence allowing for activation trigger: for example a 50% probabiity that 80,000 houses will be totally damaged to 95% probability that at least 5,000 houses will be totally damaged **Philippines Red Cross**
- Real-time assesment of the impact of the hazard, and the urgent needs of affected communities

WHAT DOES IT ENABLE

- **MEETING THE COSTS OF CRISES AHEAD OF TIME**
- **ANTICIPATORY ACTION TO MITIGATE LOSSES**
- **TRADITIONAL HUMANITARIAN RESPONSE**

EXAMPLES OF ACTIONS

- Government pre-arranged crisis finance, such as Typhoon Cat Bond, Parametric insurance policy for natural disasters and City disaster insurance pool **REAP Case study**
- Humanitarian pre-arranged crisis finance, such as parametric insurance **B-Ready Programme with Global Parametrics**
- Humanitarian pre-arranged crisis finance, such as national reserves and risk pooling and Start Ready programme **Start Network**

- Validating pre-identified beneficiary lists, updating messaging, procuring supplies, consulting with local authorities **OCHA**
- Advanced monitoring including examining 6-hourly forecasts **Philippines Red Cross**

- Shelter strengthening and livestock evacuations (Local Government Units in Western Samar and Southern Leyte, Anticipation Hub Case-study 2021)
- Deployment of staff to coordinate ahead of the event **ASEAN**
- Digital cash transfers to vulnerable community members prior to landfall **Oxfam & Plan International B-Ready**
- Cash assistance (70%), nutrition commodities and supplies; water quality testing and monitoring supplies; protection commodities such as dignity kits and adolescent bags; and safe storage sites for livelihood assets **OCHA**
- Early harvesting of matured crops, livestock and assets evacuation and installation of shelter strengthening kits, in addition to cash for work **Philippines Red Cross**

- Mobilizing funds to facilitate deployment of human resources, cash and assistance to meet urgent needs. **Local Government Units in Western Samar and Southern Leyte, in development**

START NETWORK

3.3 REGIONAL VARIATIONS

As described previously, global modelling of hydrometeorological hazards is freely available and so often considered the low-hanging fruit of crises that can be both modelled and forecasted. Nonetheless, there are significant geographical variations in skill.

A 2018 study examined the skill of National Oceanic and Atmospheric Administration (NOAA) and European Centre for Medium-Range Weather Forecasts (ECMWF) models in generating actionable seasonal preparedness forecasts and short-term forecasts for extreme heat and cold across the world.[58] The positive finding was that nearly 5 billion people reside in locations where the models accurately predict extreme events and could therefore support them to take mitigative action. Nonetheless, this coverage was not universal, with significant geographical variations, and this study was based on a single definition of what constitutes a heat/cold wave crisis, which will vary by country.

FIGURE 3

GEOGRAPHICAL VARIATION IN RELIABILITY OF EXTREME HEAT FORECASTS FROM GLOBAL MODELS[59]
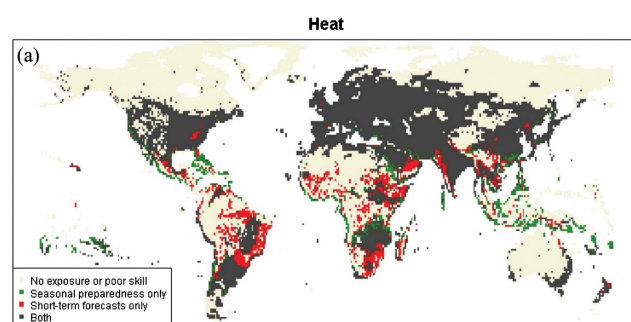
Similar variations in model skill have been reported by operational implementing agencies.

For example, Start Network's Pakistan heatwave anticipatory action system covers six cities, with triggers set at 10 days prior to forecasted heatwave based on a model developed in collaboration with researchers from the London School of Economics and Reading University drawn primarily from NOAA forecasts. The NOAA data performs effectively in five of the cities, but in the sixth a unique micro-climate renders it unworkable. For this city, the system relies mainly on local met service advisories requiring a different approach.[60] Examples such as these highlight the significant added value of global risk information models to risk-informed humanitarian action, but also the need to manage expectations that these can be leveraged in every setting. They also underscore the need to support services of national meteorological and hydrological agencies, as well as the value of ground-based recordings to calibrate and validate models.

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58 Coughlan de Perez, E., Van Aalst, M., Bischiniotis, K., Mason, S., Nissan, H., Pappenberger, F., Stephens, E., Zsoter, E. and van den Hurk, B. (2018). *Global predictability of temperature extremes*. Environmental Research Letters, 13(5): 054017.
59 Ibid
60 Start Network direct communication.

Distribution of hygiene kits and personal protection items to displaced families in response to a looming armed crisis in Araquita, Colombia. Start Fund Alert 511, 2021.
©CADENA

3.4 BOTTOM-UP APPROACHES TO MANAGING UNCERTAINTY IN RISK INFORMATION

When considering whether available risk information is 'good enough' for anticipatory action, a number of questions must be taken into account. Only some of these, such as whether a hazard indicator is captured by available models, have a definite answer.

Questions such as what constitutes a crisis, how are impacts felt by communities, what constitutes an acceptable certainty/probability threshold at which to act (potentially in vain), are held by those with detailed knowledge of exposure and vulnerabilities (often national governments, local responders and at-risk communities themselves).[61] It is neither feasible nor desirable to take such decisions at the global level.

The implications for this paper and the analysis laid out below is that, whilst some crises may be considered easier to forecast or model than others (for example due to availability of global forecasting models), there is no 'off-the-shelf' solution.[62]

Coverage is not universal and global risk information can also only be operationalised into sustainable anticipatory systems through meaningful involvement of national governments and communities at risk. This is an important limitation when considering the analysis in the following section.

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61 Klassen, S. (2021) *Information is power: Connecting local responders to the risk information that they need*. London: Start Network.
62 Centre for Humanitarian Data (2022) *OCHA Centre for Humanitarian Data webinar on flood modelling for anticipatory action*. Anticipation Hub News & Blogs, 10 March.

04 QUANTIFYING THE POTENTIAL FOR ANTICIPATORY ACTION AND DISASTER RISK FINANCING WITHIN THE HUMANITARIAN CASELOAD

Female Beneficiary 31, from Brgy. San Pedro, Talibon participated in the cash-for-work program of Inclusive Anticipatory Disease Outbreak Response (IADOR). Water gallon and hygiene kit provided though the IADOR project. Clean drinking water remained problematic in her community post-Typhoon Odette.
©Melinda Gabuya

In this section we analyse the current humanitarian caseload to identify and categorise crises according to the opportunities that they offer to take action earlier in the evolution of a crisis on the basis of a forecast, or to pre-arrange disaster risk finance.

4.1 CURRENT HUMANITARIAN CASELOAD

A large majority of humanitarian assistance globally goes to countries in protracted crisis.[63] Between 2010 and 2021, 89% of UN inter-agency coordinated humanitarian appeals funding was committed to countries with year-on-year humanitarian response plans.[64]

Much of the overall caseload is chronic, requiring continued assistance rather than event forecasting and baseline modelling for anticipatory action and disaster risk finance. Instead, the chronic needs are better addressed through reliable, medium-term funding and interventions (e.g. regular budget allocations, multi-year humanitarian funding, and development and resilience programming), though with the flexibility to reallocate, or to allocate additional resources in case of emergency.[65]

Nonetheless, these countries in protracted crisis also experienced more acute spikes in funding during the same period. This suggests that general humanitarian funding allocated to countries with protracted crises situations is in part also being used to address increased humanitarian needs resulting from specific shocks in a given year

e.g. drought hitting Somalia in 2021 (see Figure 4). Within these complex crisis contexts, there may be potential to pre-arrange financing and/or act on forecasts of anticipated spikes that can be modelled (as indicated on the red arrow in Figure 4). This would provide greater predictability of response for at least part of the risk profile and reduce competition for funding with other types of risk in that context. However, in contexts of prolonged and continuous crises, it is particularly important to accurately model vulnerabilities and take into account the potential for compounding effect with other risks.

A very small share of total humanitarian funding is attributable to single, isolated events.

Between 2010 and 2021,[66] 40 of 368 UN inter-agency appeals (just under 10%) were flash appeals,[67] i.e. appeals related to major disasters that exceed the response capacity of governments or single agencies. In addition, a few other humanitarian response plans clearly responded to specific disaster events (e.g. the Iran Flood Response Plan in April 2019 and the Philippines Typhoon Haiyan Strategic Response Plan). However, for most other appeals, especially in a protracted crisis context, it is difficult to disentangle the share of funding that was used to respond to specific disasters or acute spikes in need.

There currently is no comprehensive database attributing humanitarian funding flows to specific disaster events, or to spikes in need and the hazard(s) they may result from.[68]

There are, however, humanitarian emergency funds such as the CERF Rapid Response mechanism or the Start Funds that already provide ways for UN agencies and NGOs to access money in response to new crises emerging, or when there are spikes within a protracted crisis situation (Table 2), i.e. the sorts of situations in which anticipatory action and pre-arranged disaster risk finance may increase the effectiveness of a humanitarian response. Both CERF and the Start Funds are also already piloting or implementing anticipatory action to increase the timeliness and efficiency of humanitarian funding.

63 Development Initiatives (2019) *Global Humanitarian Assistance Report 2019*. Bristol: Development Initiatives. See also analysis presented in Chapter 4 of this paper.

64 Calculated based on UN OCHA FTS appeals data: *https://fts.unocha.org/*; Countries considered in this category are those with at least 5 consecutive years of humanitarian response plans in the 2020-2021 period. Recurring regional responses are also included in this category.

65 Poole, L., Clarke, D. and Swithern, S. (2020) *The Future of Crisis Financing: A Call to Action*. London: Centre for Disaster Protection.

66 2014 to 2021 was used as the period of analysis for most parts of this paper, as the Start Fund became operational in 2014, and 2021 represents the most recent year of full data availability.
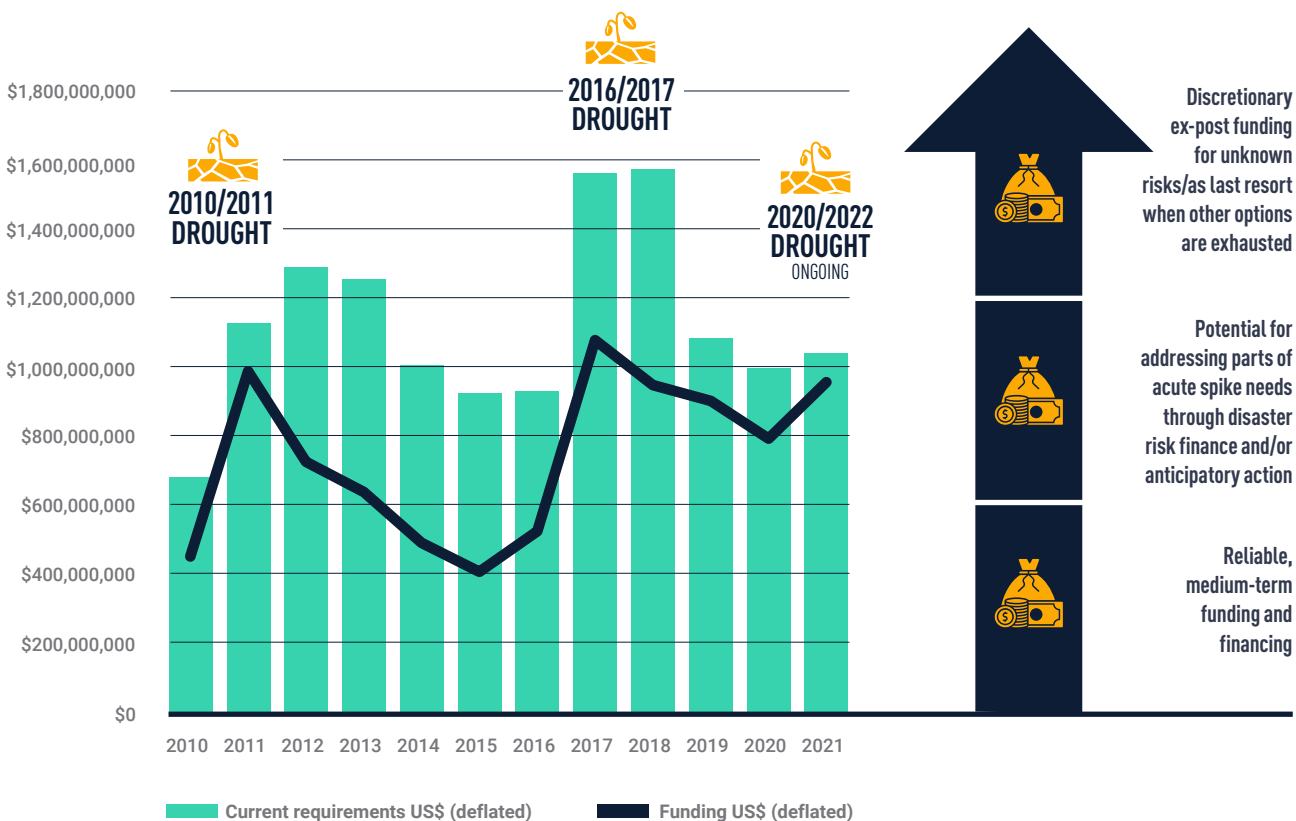
67 Flash appeals are "An inter-agency humanitarian response strategy to a major disaster that requires a coordinated response beyond the capacity of the government plus any single agency. The plan addresses acute needs for a common planning horizon, normally up to six months." (UN OCHA Financial Tracking Services (FTS) (n.d.) *Glossary*. Accessed April 2022)

68 The Centre for Disaster Protection and Development Initiatives has recently undertaken this sort of detailed analysis for a select number of countries, and the Centre for Disaster Protection is working towards improvements in data that captures global humanitarian funding for response to natural hazards. See: Crossley, E., Hillier, D., Plichta, M., Rieger, N. and Waygood, S. (2021) *Funding disasters: Tracking global humanitarian and development funding for response to natural hazards*. Working Paper 8. London: Centre for Disaster Protection and Development Initiatives.

FIGURE 4

FUNDING REQUIREMENTS AND ALLOCATIONS TO SOMALIA UNDER UN INTER-AGENCY COORDINATED HUMANITARIAN APPEALS[69]

Current requirements US$ (deflated)   Funding US$ (deflated)

2010/2011 DROUGHT

2016/2017 DROUGHT

2020/2022 DROUGHT ONGOING

Discretionary ex-post funding for unknown risks/as last resort when other options are exhausted

Potential for addressing parts of acute spike needs through disaster risk finance and/or anticipatory action

Reliable, medium-term funding and financing

TABLE 2

CERF RAPID RESPONSE GRANT AND START FUNDS FOCUS

CERF RAPID RESPONSE	Sudden-onset emergencies	A rapid or significant deterioration of an existing humanitarian situation	Time-critical interventions
START FUNDS	Underfunded small to medium-scale crises	Spikes in chronic humanitarian emergencies	Forecast and early action for impending crises

69 Data from *UN OCHA FTS appeals dataset*; Categories in the red arrow based on Poole, L., Clarke, D. and Swithern, S. (2020) *The Future of Crisis Financing: A Call to Action*. London: Centre for Disaster Protection.

Therefore, in the following sub-chapters, we are using the <u>CERF Allocation Database</u> and the global <u>Start Fund</u>[70] <u>Alerts Dashboard</u> data as a basis for analysing the extent to which parts of the humanitarian caseload could be forecastable and modellable.

The CERF data and the global Start Fund data are also used to provide complementary information, e.g. on where and for which hazards anticipatory action is already implemented, as both now support the release of funds in anticipation of crises. CERF has been piloting anticipatory action allocations under its rapid response window, and so far has been used in Somalia, Ethiopia and Bangladesh,[71] allocating a total of US$ 58,429,724 to four activations across the three countries in 2020 and 2021. This makes up about 6% of total CERF Rapid Response funding in those two years. The global Start Fund awarded US$ 11,263,507 to 43 anticipatory alerts between end of 2015 (when the first anticipatory allocation was made) and 2021, i.e. around 13% of the total global Start Fund alerts value approved over the 2015 to 2021 period.

As a result of this approach, the data included here only represent a sub-set of all humanitarian funding; and they do not capture all humanitarian funding allocated to specific disaster events.

Figure 5 shows CERF and the global Start Fund (in red) in the context of international public humanitarian funding more broadly. The parts in red are those that are included in our analysis presented in the following chapters.

The small share of total funding covered, and the focus on the global Start Fund and CERF mean that the analysis is not representative of all humanitarian funding. It can, however, be considered representative of the share of international public humanitarian funding that responds to acute shocks.

The CERF Rapid Response and Start Fund allocation data are useful to get an idea of how forecastable and modellable those events within the humanitarian caseload are, for which anticipatory action and pre-arranged disaster risk finance are potentially most relevant. This is because CERF Rapid Response and the Start Fund focus specifically on responding to acute shocks and spikes in need, including in contexts of protracted crisis, rather than the year-on-year funding to address chronic needs. While CERF generally addresses larger-scale sudden-onset emergencies, the Start Fund explicitly targets small to medium-scale crises. Both together thus cover a relatively large spectrum. Our analysis does not include private financial flows in response to crises, nor other public flows beyond what is channelled through CERF and the global Start Fund.

FIGURE 5

CERF RAPID RESPONSE AND START FUND ALLOCATIONS 2014-2021 (CONSTANT 2019 US$)

ALL INTERNATIONAL PUBLIC HUMANITARIAN FUNDING

INTERNATIONAL PUBLIC HUMANITARIAN FUNDING TO RESPOND TO ACUTE SHOCKS/SPIKES IN NEED

CERF RAPID RESPONSE	GLOBAL START FUND
US$2.9 BILLION	**US$101 MILLION**

Note: Boxes are not drawn to scale. Authors' figure based on data from CERF and Start Network.

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70 Start Network also has specific country level funds for Nepal and Bangladesh. These were not included in our analysis, however, because their funding data was not sufficiently compatible with the global Start Fund data.
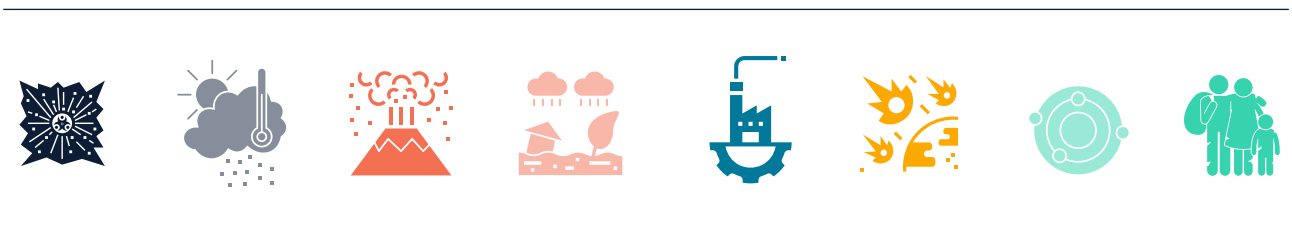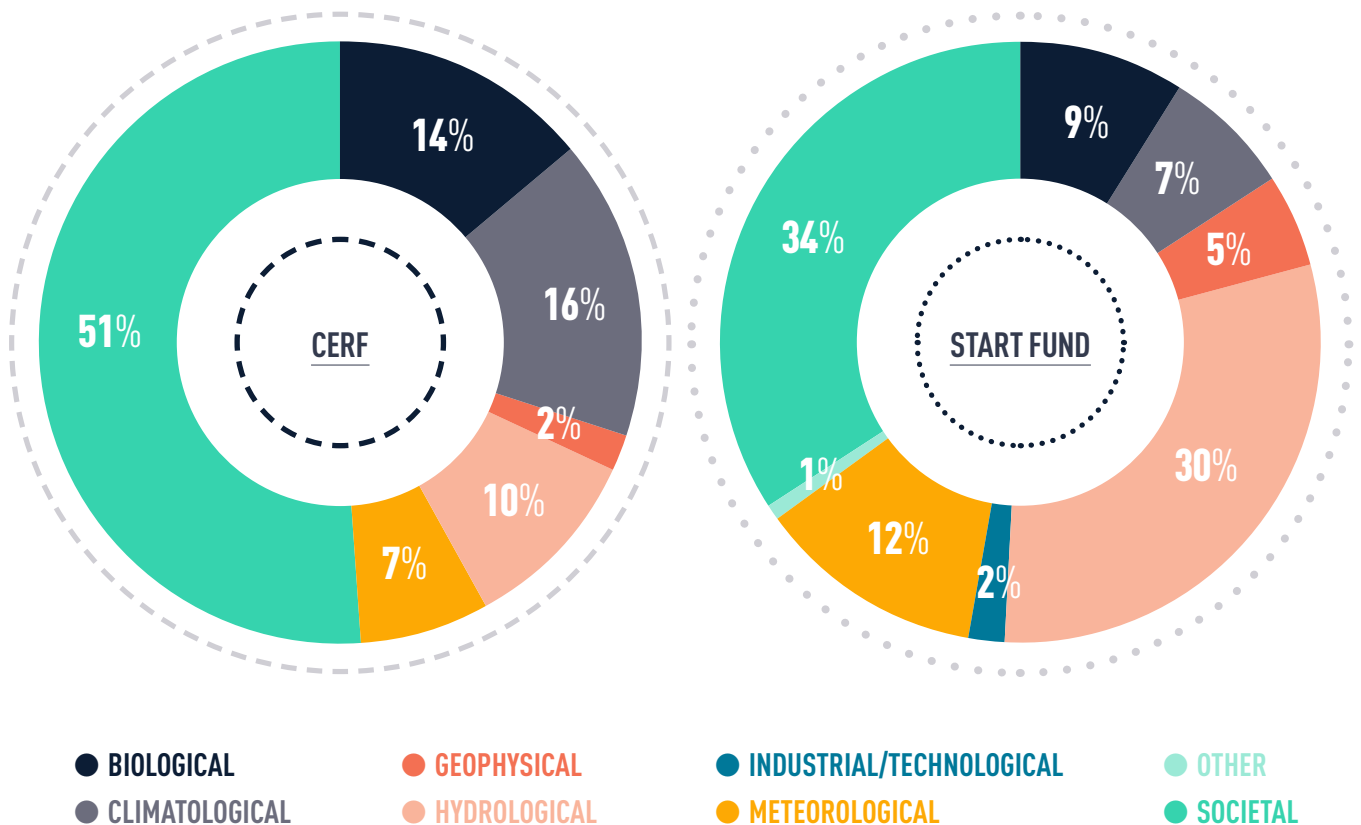
71 While there have been other instances where CERF was used in anticipation of a crisis, these were mostly ad hoc. The pilots are based on a more formalised funding release process, which involves endorsements from the Resident/Humanitarian Coordinator and the Emergency Relief Coordinator, as well as the activation of a trigger that is pre-agreed as part of each pilot. CERF (2021) <u>CERF Anticipatory Action</u>. New York: United Nations Central Emergency Response Fund.

Between 2014 and 2021, CERF approved a total of over US$ 2.9 billion in rapid response funds (including anticipatory action), which aim to enable UN agencies and partners to act quickly when emergencies happen. The Start Fund awarded more than US$ 101 million during those years.

These allocations included crises related to different meteorological (storm, excess rainfall, extreme temperature), climatological (drought and wildfire) and hydrological hazards (flood and rainfall-related landslides), geohazards (earthquake, volcano), societal hazards (displacement, economic disruption, human rights, post-conflict needs, refugees, violence, conflict and clashes), biological hazards (cholera, COVID-19, Ebola, measles, insect infestations) and other situations where hazards were not specified or where multiple emergencies collided.

FIGURE 6

CERF (LEFT) AND START FUND (RIGHT) CRISIS ANTICIPATION AND RESPONSE FUNDING 2014-2021 (CONSTANT 2019 US$)

- ● **BIOLOGICAL**
- ● **CLIMATOLOGICAL**
- ● **GEOPHYSICAL**
- ● **HYDROLOGICAL**
- ● **INDUSTRIAL/TECHNOLOGICAL**
- ● **METEOROLOGICAL**
- ● **OTHER**
- ● **SOCIETAL**

Note: Peril categories based on CERF and Start Fund allocation data and _EM-DAT hazard classification_ to include meteorological (excess rainfall, storm, extreme temperature), climatological (drought, wildfire), hydrological (flood, landslide – rainfall-related), geophysical (earthquake – incl. Tsunami, landslide – dry mass movement, volcanic activity), biological (disease outbreaks/epidemics, insect infestation), industrial/technological (explosion, fire), societal (violence/clashes/conflict, displacement/refugees, economic disruption, other societal), and other (unspecified emergency, multiple emergencies).

4.2 CATEGORISING HOW WELL HUMANITARIAN CRISES CAN BE FORECAST AND MODELLED

To understand the extent to which crises in the current humanitarian caseload offer opportunities to take action earlier in the evolution of a crisis on the basis of a forecast, or to pre-arrange disaster risk finance, we identify and categorise recorded CERF Rapid Response allocations and Start Fund allocations according to the risk information likely available for each type of crisis event.
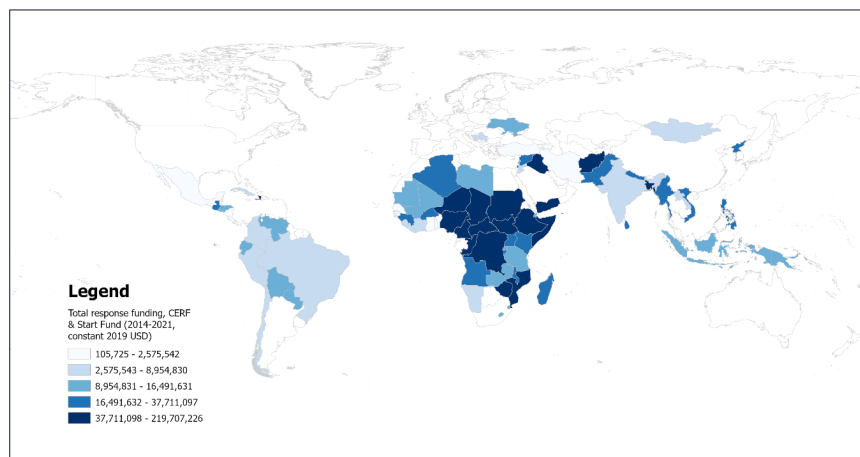
4.2.1 Scenario 1: Low-hanging fruit – Leveraging systems already operational today

The first scenario is based on reviewing the risk models and forecasting systems that are reported to be in place and used for anticipatory action and disaster risk finance for different types of hazards.

This bottom-up analysis gives a sense as to what success could look like if we were simply to leverage the event forecasting and baseline risk modelling that is already operational today. Figure 7 summarises operational examples of forecasts and models used for anticipatory action and disaster risk finance for different hazards in the countries where CERF Rapid Response and Start Fund allocations were made between 2014 and 2021. For more details on the approach and categorisations for this scenario, see explanatory notes below in Box 1.[72]

FIGURE 7

CERF RAPID RESPONSE AND START FUND ALLOCATIONS, 2014-2021 (CONSTANT 2019 US$)

Legend
Total response funding, CERF & Start Fund (2014-2021, constant 2019 USD)

- 105,725 – 2,575,542
- 2,575,543 – 8,954,830
- 8,954,831 – 16,491,631
- 16,491,632 – 37,711,097
- 37,711,098 – 219,707,226

Note: Authors' figure, based on *CERF Allocation Database* and *Start Fund Alerts Dashboard* data. Base map data were extracted from the *GADM Database*, version 3.4, April 2018.

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72 Unless specified otherwise, the tables and figures in this and the following chapter describe funding allocations, or respective annual/country/hazard share of funding allocated and approved thought the CERF Rapid Response mechanism and the Start Fund, at constant 2019 prices (based on data from IMF WEO, April 2022).

4.2.1.1 Allocations based on operational baseline risk modelling
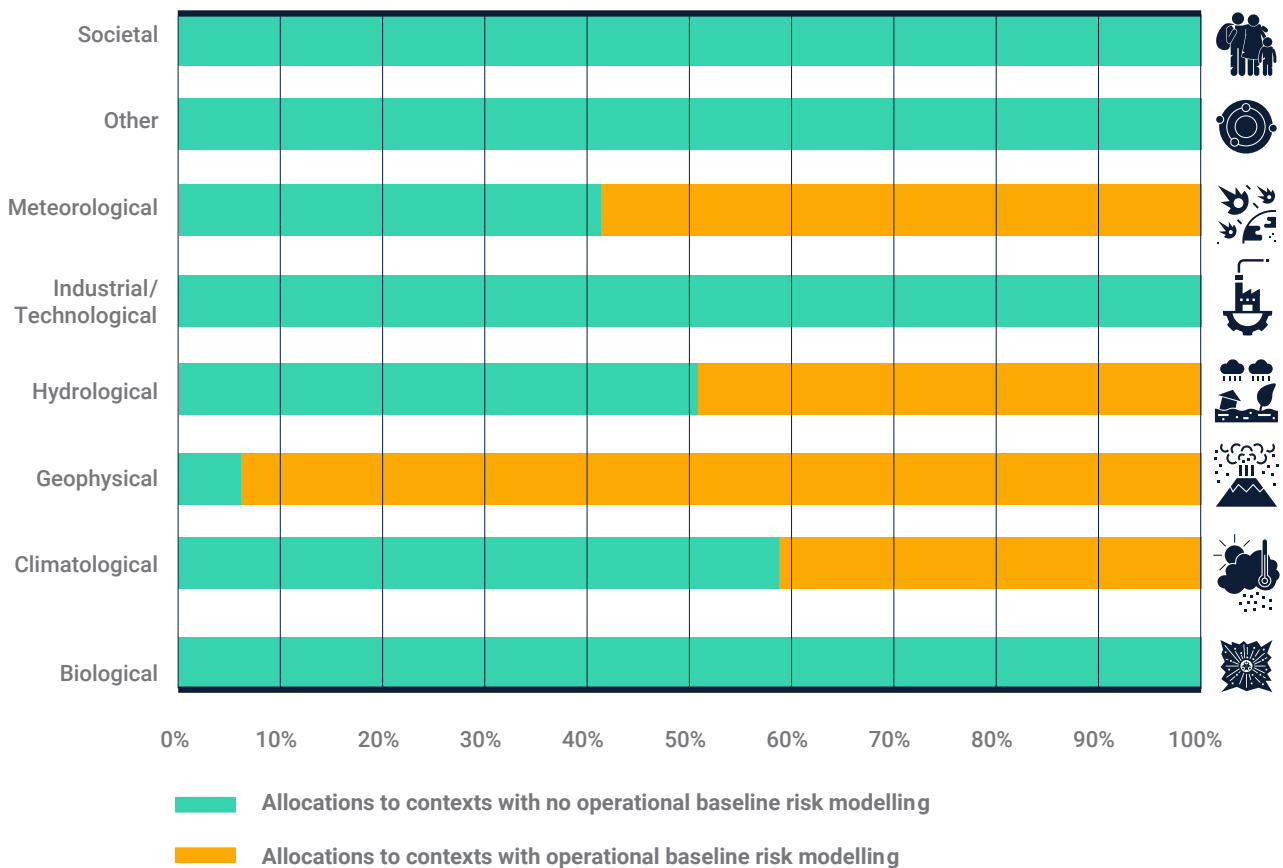
Hazards for which an event forecast or baseline risk modelling is operational and has already been used to implement disaster risk finance in the respective country.

At least 18.1% of combined CERF Rapid Response and Start Fund alert funding was allocated to crises for which a baseline risk model is now operational in that country, suggesting that finance could be pre-arranged for these types of events in the respective country to a greater extent in the future (Figure 8).

For some hazards, this percentage is considerably higher, including floods (49%), droughts (41%), storms (66%) and earthquakes (100%). This highlights the already important role and further potential of baseline risk modelling for pre-arranging disaster risk finance in support of humanitarian responses, especially for those crises that result from hydrological, meteorological and geophysical hazards. At the same time, it shows the limits of currently operational baseline risk modelling, which is not available to pre-arrange finance for some other types of emergencies in the respective countries. This applies especially to those emergencies stemming from biological and societal hazards, which make up a large share of funding in the current CERF Rapid Response and Start Fund caseload – 57% across both funds between 2014 and 2021 (see Figure 6).

FIGURE 8

CERF AND START FUND APPROVED ALLOCATION AMOUNTS BY WHETHER BASELINE RISK MODELLING IS OPERATIONAL FOR DISASTER RISK FINANCE IN THE RESPECTIVE COUNTRY FOR DIFFERENT TYPES OF HAZARDS

Allocations to contexts with no operational baseline risk modelling

Allocations to contexts with operational baseline risk modelling

4.2.1.2 Allocations based on operational event forecasting

Hazards for which an event forecast or baseline risk modelling is operational and has already been used to implement anticipatory action in the respective country.

Over one fourth of CERF Rapid Response and Start Fund alert funding (29%) was approved for types of crises with operational event forecasts already in place and used to implement anticipatory humanitarian action in the respective countries (Figure 9).

This share is greatest for funding allocations to respond to meteorological, climatological and hydrological events, especially extreme temperature (100%), storms (67%), drought (68%) and flood (50%). For these types of events, there is already strong operational event forecasting and experience implementing anticipatory action in the countries to which CERF and the Start Fund have allocated response funding.

There is variation, however, even within the hazard categories, with regards to how well – and how long in advance – events can be forecast in different locations, how much time is available as a result to implement anticipatory action, and, in consequence, how much humanitarian funding should be anticipatory rather than responsive. This is the case, for instance, for flooding, which encompasses riverine and flash floods (see also Chapter 3.2 and Box 2). Because the analysis is conducted at national level, it is also likely missing some geographical variation, e.g. for flooding, where some catchments are more accurately forecastable than others.

FIGURE 9

CERF AND START FUND APPROVED ALLOCATION AMOUNTS BY WHETHER EVENT FORECASTING IS OPERATIONAL FOR ANTICIPATORY ACTION IN THE RESPECTIVE COUNTRY FOR DIFFERENT TYPES OF HAZARDS

Allocations to contexts with no operational event forecasting

Allocations to contexts with operational event forecasting
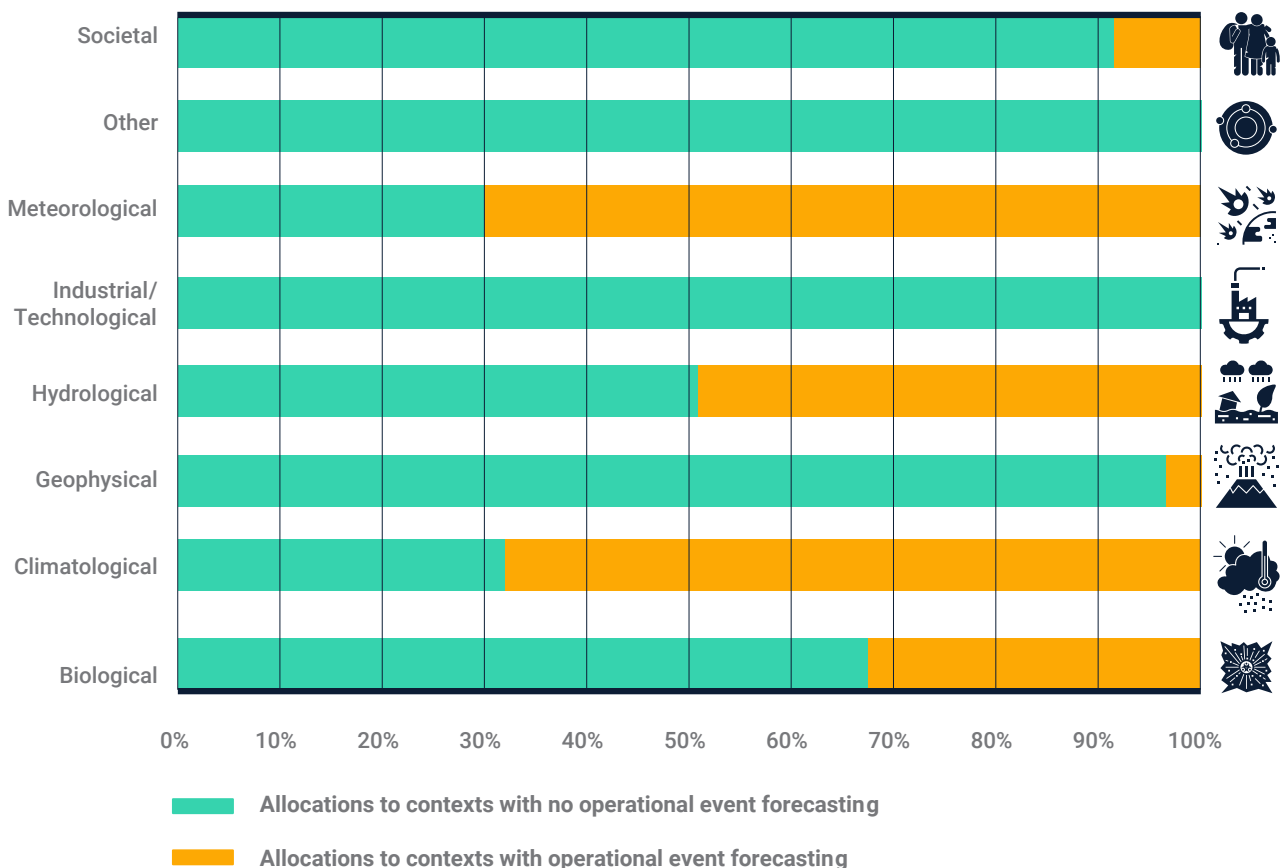
BOX 1 | EXPLANATORY NOTES FOR APPROACH UNDER SCENARIO 1

To start with, we built a database of known event forecast and baseline risk models in operation from the sources listed in Table 3 below.[73] This database is not globally comprehensive, but rather focused specifically on capturing operational models in countries where CERF and the Start Fund have supported a response in the past.

We then examine how many of the different hazard/country combinations to which CERF and the Start Fund allocated response funding between 2014 and 2021 fall into the geographical remit of these operational models, and therefore what success would look like if we were simply to leverage the risk models and anticipatory systems already in place today. For this purpose, dummy variables were created and assigned a value of one for each hazard/country combination where our operational database lists an operational event forecast or baseline risk model. The criteria for an event being classified as forecastable or modellable in our analysis therefore does not depend on whether a forecast or model was actually available for that particular event at the time when it happened, but whether an event forecast or a baseline risk model is operational today in the country and for a type of event that happened in the past, and that CERF and/or the Start Fund responded to.

In a final step, the dummy variables are matched with the database of past funding allocations through CERF Rapid Response and the Start Fund, in order to calculate how much funding has gone to countries and emergencies for which event forecasts or baseline risk models are used to implement anticipatory action and disaster risk finance today. Anticipatory allocations under both funds are included as part of funding allocations in the analysis, as in these instances they are already making use of forecasting and modelling potential. They are also recorded in the database of examples where some sort of forecasting is already used for anticipatory action.

Displaced children in Syria are supported through provision of ready-to-eat meals, food baskets, and heating equipment amidst a harsh winter storm. Start Fund Alert 500, 2021
© Islamic Relief Worldwide

73 Please contact the authors if interested to access the full dataset of operational forecast and baseline modelling systems identified for this report.

TABLE 3

EVENT FORECASTS AND BASELINE RISK MODELS OPERATIONAL IN ANTICIPATORY ACTION AND DISASTER RISK FINANCE

EVENT FORECAST OPERATIONAL FOR ANTICIPATORY ACTION IMPLEMENTATION

Anticipation Hub trigger database	• Online platform which anticipatory action practitioners can voluntarily report to and access information from about triggers, including country, hazard, sector, lead time, activation process and history, and forecast source. • Online database that is continuously updated as and when information is submitted to Anticipation Hub. Information accessed in April 2022. • Includes 21 entries of triggers, mostly for flooding, extreme temperature and storms, and attached to Red Cross Red Crescent National Society's early action protocols.
World Meteorological Organization (WMO) World Weather Information Service	• Online platform presenting official weather observations, weather forecasts and climatical information for cities, supplied by National Meteorological & Hydrological Services (NMHSs) worldwide. • Continuously updated online database. Information accessed in May 2022. • Shows weather forecasts for cities in 114 countries globally.
Start Fund Alerts Dashboard	• Online platform showing Start Fund alerts (including anticipation alerts), including information about the alert type and status, alert date, crisis type, country location, agencies funded, and amounts awarded. • Continuously updated, including alerts once an allocation has been made. Information available online complemented with dataset provided directly by Start Network in May 2022. • Includes 48 alerts, mostly focused on flood, drought, disease outbreaks/epidemics, displacement/refugees and storms, but also addressing extreme temperature, volcanic activity, violence/clashes/conflict, and wildfire.
OCHA-facilitated anticipatory action portfolio	• OCHA website providing information about the OCHA-facilitated anticipatory action initiatives that have been activated, endorsed, or are under development. • Information accessed in May 2022, last updated in November 2021. • Portfolio is largely concentrated on droughts, floods and disease outbreaks in Africa and south/southeast Asia.
Global Parametrics project data	• List of parametric programmes that Global Parametrics have been involved with, either providing risk transfer, building indices, designing the programme or working as a partner. • Information provided directly by Global Parametrics in May 2022. • Tropical cyclone and flood forecast indices in 3 countries.

BASELINE RISK MODEL OPERATIONAL FOR DISASTER RISK FINANCE IMPLEMENTATION

IDF CatRiskTools database of catastrophe risk models	• Online platform providing a global catalogue of catastrophe risk analysis tools. Includes information about the model, product and technical details, system requirements and organisation, as well as whether the model has been actively used in the insurance and finance sectors. • Compiled in 2018, update planned. Online information complemented with dataset provided by IDF in May 2022 (January 2019 version). • Global database, including information about tropical cyclone, earthquake, tsunami, flood and drought catastrophe models in 27 of the countries in which CERF Rapid Response or Start Fund alerts were raised between 2014 & 2021.
Start Network disaster risk finance trigger information	• List of triggers already in use by Start Network to implement disaster risk finance, or currently under development. Includes information about the country and peril, trigger description and frequency, and risk modelling. • Information provided directly by Start Network in May 2022. • Lists 8 triggers for drought, flood, tropical cyclone and heatwave across 6 countries
Regional Risk Pools (CCRIF, ARC, SEADRIF, PCRIC)	• Websites of the regional risk pools providing information about coverage and products, including country and peril. • Information accessed in May 2022. • Operational for 35 countries in total, 25 of which are countries where CERF Rapid Response or Start Fund allocations have been made (2014-2021).
InsuResilience Solutions Fund project data	• ISF Website listing climate risk insurance projects that the Fund has supported at the stage of product development and implementation. • Information accessed in May 2022. • Includes projects across 11 countries, mostly for drought, flood and excess rainfall, as well as some for storm, earthquake and plant disease.
Global Parametrics project data[74]	• List of parametric programmes that Global Parametrics have been involved with, either providing risk transfer, building indices, designing the programme or working as a partner. • Information provided through direct communication with Global Parametrics in May 2022. • Includes projects across 32 countries covering storm, drought, flood, excess rainfall, earthquake and volcano.

For each of these sources, where a model has been used to implement disaster risk finance, or a forecast has been published via WMO/used to trigger anticipatory action by different organisations, we considered a model/forecast to be 'operational' for the respective country and hazard. Many of the above databases rely on operational organisations publishing up-to-date information themselves, or reporting information voluntarily to an online platform or information curator (e.g. Anticipation Hub trigger database or IDF CatRiskTools database). This means the amount of operational modelling and forecasting in humanitarian contexts captured in our data is likely underestimated. Further, across both modelling and forecasting, the available information and databases included here are biased towards hydrological and meteorological, and to some extent geophysical, hazards. While event forecasts and models may be used to pre-arrange finance and take action ahead of other hazardous events that result in a humanitarian response, e.g. epidemics, economic shocks or conflict, these types of experiences are most likely underrepresented in this analysis.

74 Information provided through direct communication with Global Parametrics.

4.2.2 Scenario 2: Realising the full forecasting & modelling potential

This scenario takes the starting point that in principle most crises should be forecastable and modellable.

It then reviews existing operational experience, factors such as availability of global risk information models and any well documented limitations in forecasting and modelling to categorise crises according to their overall potential for forecasting and modelling. This is even in contexts where there is no current operational use of event forecasts and baseline risk models to systematically pre-arrange finance and allocate funds in anticipation of a crisis. This top-down analysis gives a sense as to what success could look like if we were to take advantage of the opportunities offered within the boundaries of science today. For more details on the approach and categorisations for this scenario, see explanatory notes below in Box 2.

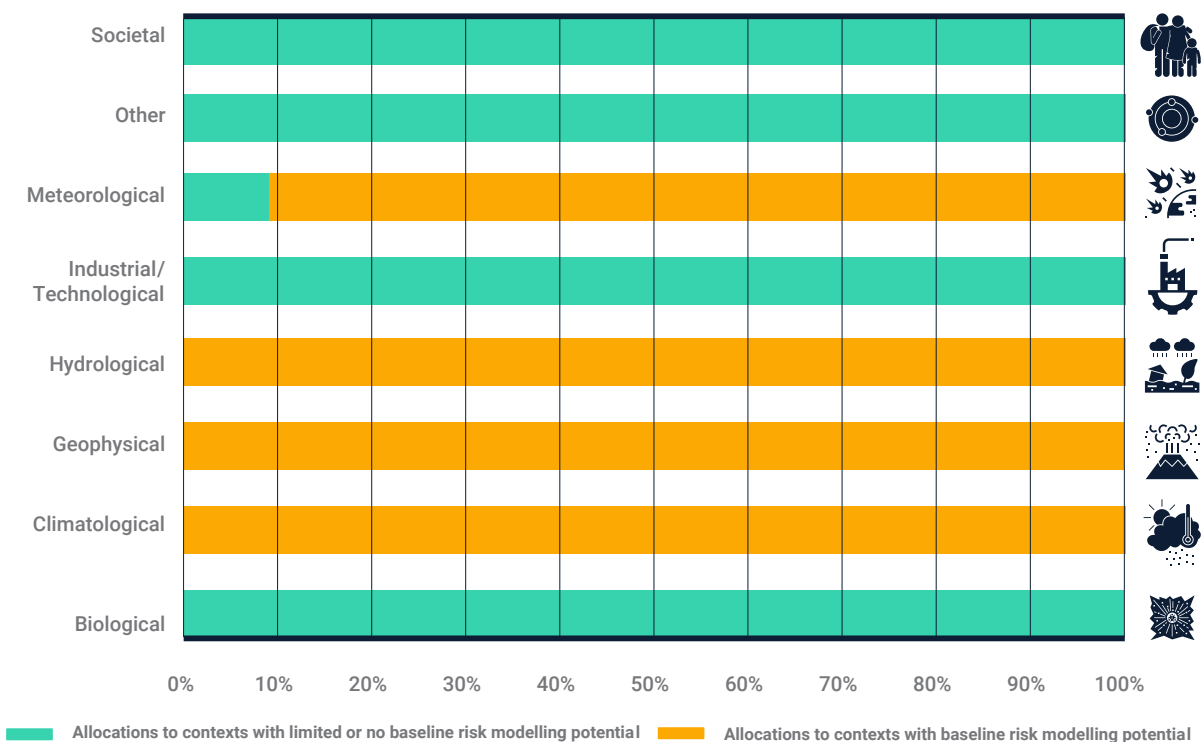# 4.2.2.1 Baseline Risk modelling potential for pre-arranged finance

This section considers which hazards and their impacts can generally be modelled on the basis of fairly well developed data and technology, irrespective of whether they are currently operational to pre-arrange disaster risk finance in the given country.

Over one third (35%) of funding allocated through the CERF Rapid Response mechanism and Start Fund between 2014 and 2021 falls into this category.

This includes all climatological, geophysical, and hydrological events, and over 90% of meteorological events. The remaining 65% of funds supported response to types of emergencies that are generally very hard to model or not considered modellable in a way that would enable pre-arranging of disaster risk finance, including first and foremost societal hazards.

FIGURE 10

CERF AND START FUND APPROVED ALLOCATION AMOUNTS BY CURRENT POTENTIAL FOR BASELINE MODELLING FOR DISASTER RISK FINANCE IN THE RESPECTIVE COUNTRY FOR DIFFERENT TYPES OF HAZARDS

🟩 Allocations to contexts with limited or no baseline risk modelling potential   🟧 Allocations to contexts with baseline risk modelling potential

4.2.2.2 Forecast availability for anticipatory action

Hazards which can generally be forecast to some extent, though at vastly varying lead times and levels of accuracy which may limit the potential for anticipatory action; irrespective of whether they have been system-atically used to allocate anticipatory humanitarian funding yet.

Of the total funding allocated for response by CERF and the Start Fund, 73% falls within this category. This includes most hazard types except earthquakes and complex emergencies.

This does not mean that 73% of all humanitarian funding should be shifted to resource anticipatory action, but that within the share of humanitarian funding that has been allocated to respond to specific emergencies or spikes in needs, around 73% has some potential to be anticipated to a greater extent. This applies especially to crises driven by climatological, meteorological and hydrological hazards.

Given the breadth of crises in this category, the nature of forecasts that could be used to anticipate them also varies greatly.

Some may be highly formal, technical and quantified with automated triggers attached, while others may require more informal or qualitative approaches and 'softer' processes to decide whether and when to implement any anticipatory action (see Chapter 2.1). Which of these is available and appropriate in a given situation depends on the hazard and on the level of flexibility that decision-makers prefer.

Within each type of hazard, there is also a large variation in available skill and lead time, which influences whether anticipatory action can and will be implemented

(see discussion on lead time and spatial variability in Chapter 3.2). While our analysis indicates that there is much potential for the use of forecasts in humanitarian response, not in all cases is there sufficient time and certainty to act. In other words, this category shows the share of allocations that could to some extent be forecast, but it is not saying that all of them should result in large-scale funding for anticipatory action. In many cases, the trade-offs between lead time and accuracy may not justify the opportunity costs.

FIGURE 11

CERF AND START FUND APPROVED ALLOCATION AMOUNTS BY CURRENT POTENTIAL FOR EVENT FORECASTING
FOR ANTICIPATORY ACTION IN THE RESPECTIVE COUNTRY FOR DIFFERENT TYPES OF HAZARDS

Allocations to contexts with limited or no event forecasting potential   Allocations to contexts with event forecasting potential
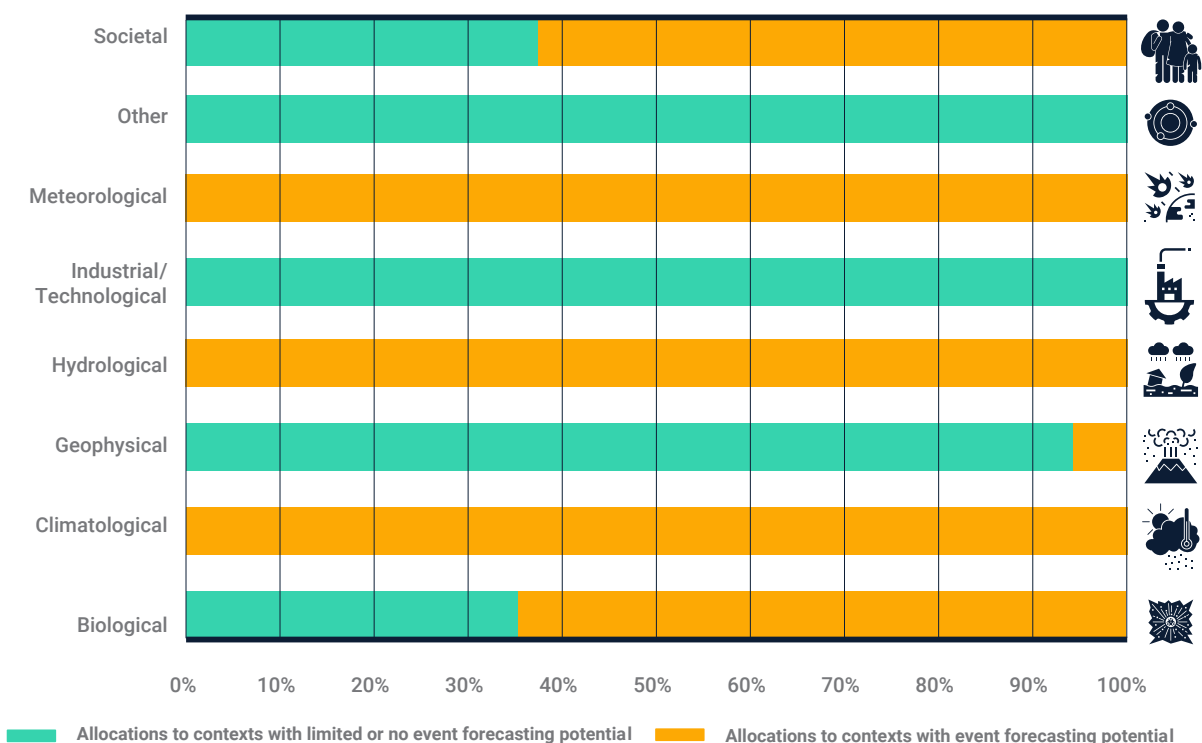
BOX 2 | EXPLANATORY NOTES ON HOW HAZARDS WERE CATEGORISED UNDER SUCCESS SCENARIO 2

To assess the potential for the use of baseline risk modelling and event forecasting, we review operational examples of anticipatory action and disaster risk finance globally, alongside secondary literature that describes the state of play on forecasting and modelling. The results of this review are summarised by hazard type below. We then apply the resulting typology again to the CERF Rapid Response and Start Fund alerts database. For this purpose, we use a dummy variable that takes a value of one for each hazard/country combination where CERF or the Start Fund have responded, and where there is potential for baseline risk modelling and event forecasting as per the below discussion.

BIOLOGICAL HAZARDS: EPIDEMICS

For the 2006-2021 period, CERF made 129 Rapid Response allocations for epidemic emergencies, including cholera (38), Ebola (21), measles (16), COVID-19 (3) and unspecified health emergencies (such as yellow fever, plague, Lassa fever (51)).

There is a strong anticipatory action flavour to these funding applications which typically make reference to the likely epidemic curve if immediate action is not taken, and appeal for mitigatory actions such as surveillance, sanitation or vaccination, intending to curb the spread of the disease. The most notable example was in 2018 when in response to an Ebola outbreak in the Democratic Republic of Congo, CERF launched 'readiness' appeals for Rwanda, Uganda, South Sudan and Burundi, who had not yet experienced a case but were estimated by WHO models to be at risk.[75]

Whilst the literature and operational evidence suggests that anticipating patient zero of a future epidemic outbreak is challenging,[76] it is clear that projections of the curve of the epidemic (whether formal or informal) are routinely used in humanitarian operations. For this reason, epidemics were classed into the category of in principle 'forecastable', with the caveat that this refers to the humanitarian impact of the event, rather than the event outbreak itself.

Operational evidence points to much fewer examples of successful modelling of epidemics to prearrange humanitarian financing. One such instrument, the Pandemic Emergency Financing Facility by the World Bank, closed in April 2021.[77] Efforts by African Risk Capacity since 2015 are yet to bear fruit.[78] For this reason, epidemics were placed in the category of at present 'hard to model'.

SOCIETAL HAZARDS: DISPLACEMENT, REFUGEES, VIOLENCE AND ECONOMIC DISRUPTION

Over the same time period, there were 366 allocations for societal hazards including Displacement (272), post-conflict needs (72), human rights (10), violence/clashes (7), economic disruption (4) and refugees (1). Post-conflict allocations were linked to spikes in the situation and consequent humanitarian caseload, while displacement was driven primarily by 'human' factors such as conflict.

Globally, a wide spectrum of tools related to predictive analytics of conflict is available, including *UNHCR's Jetson*, *ACAPS*, *International Crisis Group*, *Conflict Early Warning and Response Mechanism* and others.[79] There is also significant interest within the humanitarian community in the anticipation of conflict but barriers include the acceptance of predictive analysis by key stakeholders and ethical considerations.[80] There are operational examples of conflict anticipation within Start Network's Start Funds, which are able to operate off 'soft' triggers such as expert analysis. One interviewee for this paper asked, "did we really need a formal trigger system to start to implement anticipatory actions in the days before the conflict erupted in Ukraine?".[81] Indeed it is hard to identify situations of human-induced displacement, violence and economic disruption that come with no early warning signs at all. For this reason, societal hazards have been categorised as forecastable, with the caveat that they may be more suited to flexible anticipatory action systems rather than hard triggers.

75 CERF (2019) *CERF Allocation Rwanda. Ebola, 21 Jan 2019*. New York: Central Emergency Response Fund.

76 Jonkmans, N., D'Acremont, V. and Flahault, A. (2021) *Scoping future outbreaks: a scoping review on the outbreak prediction of the WHO Blueprint list of priority diseases*. BMJ Global Health, 6: e006623. Alcayna, T., Fletcher, I., Gibb, R., Tremblay, L., Funk, S., Rao, B. and Lowe, R. (2022) *Climate-sensitive disease outbreaks in the aftermath of extreme climatic events: A scoping review.* One Earth, 5(4): 336-350.

77 World Bank (2021) *Pandemic Emergency Financing Facility*. Accessed April 2022.

78 AllAfrica (2015) *African Risk Capacity to Develop Outbreak and Epidemic Insurance for African Sovereigns*. African Risk Capacity Press Release, 6 February.

79 Wagner, M. and Jaime, C. (2020) *An agenda for expanding forecast-based action to situations of conflict.* Berlin: Global Public Policy Institute (GPPi). https://www.anticipation-hub.org/Documents/Policy_Papers/Wagner_Jaime_2020_Expanding-Forecast-Based-Action.pdf

80 Wagner, M. and Jaime, C. (2020) *An agenda for expanding forecast-based action to situations of conflict*. Berlin: Global Public Policy Institute (GPPi). Anticipation Hub (2021) *Is anticipatory action in conflict situations compatible with humanitarian principles?* Anticipation Hub News & Blogs, 29 November.

81 Expert reference group for this paper 22 April 2022, and see: Kamen, S. (2022) *Opinion: The crisis in Ukraine shows the need for anticipatory action*. Devex Global Views, 25 March.

Woman receiving the materials of her choice, Start Fund Nepal
© Start Fund Nepal

The authors were unable to find operational examples of pre-arranged finance for societal hazards, despite the noteworthy efforts of the International Rescue Committee working with the Centre for Disaster Protection.[82] For this reason, these appeals were classed as hard to model.

METEOROLOGICAL AND HYDROLOGICAL HAZARDS

Within the CERF Rapid Response allocations data set, there were 360 meteorological and hydrological hazards including droughts (154), floods (129), storm (68) and heat/cold wave (9) for 2006-2021.

In principle, these hazards are considered easier to model, both for the purposes of a forecast or likelihood, because the underlying characteristics related to the physical drivers of the event are well understood.[83] In the context of such events, typically advances in science allow first for baseline risk modelling to be attempted successfully, and to then be refined over time until forecasts of specific imminent events become achievable.[84]

Catastrophe risk modelling is an advanced science, and a great number of baseline risk models exist for these kinds of events, albeit mainly aimed at property and life insurance and more concentrated in the global north for reasons of insurance market penetration. Nonetheless, the number of models is growing, and insurance market confidence in their models is such that it is considered in part a 'solved problem',[85] though important work is still to be done on the customisation of models used to pre-arrange finance to different contexts and humanitarian purposes.

There are many successful examples of anticipatory action systems for meteorological and hydrological hazards. For example, these make up 27 out of the 28 systems listed on the Anticipation Hub's database of anticipatory action triggers.[86] Very often these systems are based off global models such as those coming from GLOFAS, NOAA or ECMWF. This is particularly helpful in fragile states which make up a great deal of the humanitarian caseload and where national hydromet services may be weak or not functioning. In such cases, global forecast products can be relied on in combination with available data on vulnerability and exposure.[87]

There are significant variations in the skill of hydromet models not only due to local climatology but also due to localised variations in what constitutes a crisis, what the model is intending to capture on what lead times and the multitude of ways in which a physical event can translate into humanitarian impact. A hazard event such as flooding when broken down may have parts to it such as flash flooding or secondary landslides that may be much harder to model. There is no single measure of 'skill' which makes it challenging to appraise this globally in meaningful ways. Nonetheless, the significant operational examples of both disaster risk finance and forecast-based systems for hydromet events, together with

82 Airbel Impact Lab (2021) *Exploring a role for triggers and risk-informed financing in complex crises: COVID-19 as a case study*. London: Centre for Disaster Protection and Airbel Impact Lab.
83 Anticipation Hub (2021) *Multi-Hazard Risk Analysis Methodologies*. Anticipation Hub News & Blogs, 15 November.
84 Amato, G. (2021) *Natural Hazards 101: Forecasting and modelling*. EGU Blogs, 6 September.
85 For example a 2020 study on readiness for disaster insurance in small island states explored a list of potential barriers amongst which risk information was noticeable in its absence, see: Hagenlocher, M., Cotti, D., Cissé, J.D., Garschagen, M., Harb, M., Kaiser, D., Kreft, S., Reith, J., Seifert, V., Sett, D., Zwick, A. (2020) *Disaster risk and readiness for insurance solutions in small island developing states*. Report No. 26. Bonn: United Nations University Institute for Environment and Human Security (UNU-EHS).
86 Anticipation Hub (n.d.) *Trigger database*. Accessed April 2022
87 Wagner, M. and Jaime, C. (2020) *An agenda for expanding forecast-based action to situations of conflict.* Berlin: Global Public Policy Institute (GPPi).

the existence of global models that can be tailored to context with additional investment, has lent these to be categorised as in principle both forecastable and modellable.

GEOHAZARDS: EARTHQUAKE AND VOLCANO

Between 2006 and 2021, the CERF made 27 allocations to geohazards, ncluding earthquakes (25) and volcano (2).

Global earthquake models are freely available from the _Global Earthquake Model (GEM)_, enabling a probabilistic understanding of the risk of earthquakes and their likely impacts. This lends itself well to approaches for pre-arranging finance. However, forecasts of major imminent quakes with lead times that would be meaningful to humanitarian actors do currently exist, and are not likely to be available in the near future.[88] Therefore, earthquakes were categorised within the analysis as modellable but harder to forecast.

Advances in volcanology also offer substantial opportunities to model the risks of eruptions and pyroclastic flows. The Danish Red Cross Volcano Cat Bond is designed to release pre-arranged crisis finance triggered by the height of the ash plume providing an indicator of the severity of eruption.[89] Anticipatory action on the basis of forecasts linked to volcanoes has also been implemented in Ecuador by the Ecuadorian Red Cross,[90] and in the Philippines by Start Network.[91]

These examples include geophysical remote monitoring, use of scenarios to predict volcanic ash and its likely impacts, as well as storm and rainfall forecasting used to anticipate volcanic debris or mudflow. Volcano hazards were categorised in the analysis as in principle both modellable and forecastable, albeit with large uncertainty.

COMPOUND HAZARDS

Over the period 2006 to 2021, the CERF made 32 allocations to crisis situations with multiple emergencies.

Compound risks can be difficult to understand and model; and they pose challenges to forecasting humanitarian needs.[92] Most operational examples reviewed for this paper – across disaster risk finance and anticipatory action – were focused on forecasting single hazards and their impacts; though in some cases this has happened in multi-hazard contexts.

In part building on the experience of implementing anticipatory action for natural-hazard related disasters in during the COVID-19 pandemic, work is ongoing to explore how multi-hazard scenarios can be better anticipated and managed.[93] However, given the limited examples of operational anticipatory action and disaster risk finance for compound risks to date, these were classified as hard to model and forecast in our analysis.

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88 USGS (n.d.) _Can you predict earthquakes?_ Accessed May 2022.
89 Danish Red Cross (2021) _Volcano Catastrophe Bond - Danish Red Cross, Replexus, Mitiga Solutions, Howden - Placed March 2021_. Video. Accessed April 2022.
90 Anticipation Hub (n.d.) _Trigger database._ Accessed April 2022
91 Ducusin, R. (2021) _Acting in Anticipation of Lahar Amidst COVID-19_. Start Network News and Blogs, 9 June.
92 Anticipation Hub (n.d.) _Compound risks._ Accessed May 2022.
93 Tozier de la Poterie, A., Clatworthy, Y., Easton-Calabria, E., Coughlan de Perez, E., Lux, S. and van Aalst, M. (2021)
Managing multiple hazards: lessons from anticipatory humanitarian action for climate disasters during COVID-19. Climate and Development.

05 IMPLICATIONS FOR THE SETTING OF TARGETS

Woman beneficiary picking ripe vegetables in her kitchen garden
© Mohsin Badar, Programme Coordinator, Concern Worldwide with support from Ingenious Captures

This section explores the implications of the analysis in terms of the setting of global targets to advance anticipatory action and disaster risk finance.

5.1 QUANTIFYING THE SCOPE FOR RISK-INFORMED HUMANITARIAN APPROACHES

The analysis above presents the share of past CERF Rapid Response and Start Fund allocations that fall into different categories of being forecastable and modellable, under two different scenarios.

We consider that basing targets simply on the first scenario that identifies crises that fall within areas where these is already an operational baseline risk model and/or forecasting system in place (the low-hanging fruit) is likely to be an underestimation of the potential for anticipatory action and disaster risk finance. Similarly, as outlined in Chapter 2, we assume that the potential for such approaches to be realised in every locality due to the existence of global risk information models (e.g. for flooding) is likely to be a gross overestimation. With this in mind, to offer something of use to policymakers, we provide a range between both scenarios, and suggest a highly simplified median between the two types of analysis.
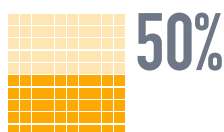
In Table 4 below, the indicated range in each case spans estimates across both scenarios, i.e. including what is already operational at one end of the spectrum, and what may be possible on the basis of existing known sources of risk information at the other end.
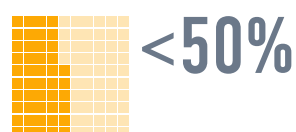
OUR ANALYSIS SUGGESTS THAT:
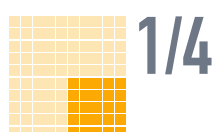
1/4

For around one fourth of the total volume of CERF Rapid Response and Start Fund allocations, it could be possible to model the risk and cost of the crises ahead of time and pre-arrange disaster risk finance.

50%

For around half of combined amounts allocated through CERF Rapid Response and Start Fund mechanisms it could in theory be possible to forecast the event ahead of time and act earlier in the evolution of the crisis to mitigate impacts.

<50%

For around less than half of the total value of allocations, the risk information is currently not available to facilitate these approaches.

TABLE 4

MODELLING & FORECASTING EXPERIENCE AND POTENTIAL IN CONTEXTS OF PAST CERF RAPID RESPONSE AND START FUND ALLOCATIONS

Analysis of CERF Rapid Response and Start Fund allocations, 2014-2021 (constant 2019 US$)	EVENT FORECASTABLE POTENTIAL FOR ANTICIPATORY ACTION	DIFFICULT TO FORECAST EVENT/ NON-FORECASTABLE PRESENTLY LIMITED POTENTIAL FOR ANTICIPATORY ACTION	
BASELINE RISK MODELLED POTENTIAL FOR PRE-ARRANGED DISASTER RISK FINANCE	**11% to 32%** of funding allocated to crises that are potentially forecastable and modellable	**2% to 7%** of funding allocated to crises that are potentially modellable but harder to access or operationalise a forecast	**Potential for pre-arranged disaster risk finance (median):** **27%**
BASELINE RISK HARDER TO MODEL PRESENTLY LIMITED POTENTIAL FOR PRE-ARRANGED DISASTER RISK FINANCE	**18% to 41%** of funding allocated to crises that are potentially forecastable but harder to model	**24% to 64%** of funding allocated crises that are challenging to both model and forecast	
	Potential for anticipatory action (median): **51%**		**Potentially out of scope (median)** **44%**

It is important to remember here that this analysis only covers a small part of the overall humanitarian caseload.

The percentages can give an indication of what share of emergency allocations – such as those made to extreme events and spikes in humanitarian needs by CERF or the Start Funds – may have modelling and forecasting experience or potential. However, the vast majority of humanitarian funding flows are allocated to meet chronic needs in protracted crises situations (see discussion in Chapter 4.1), meaning the findings presented here are not representative of overall humanitarian funding.

When considering how to apply these to the setting of targets, donors or policymakers may wish to consider conducting their own analysis of how much of the funding in scope for their target (for example a donor's humanitarian budget) goes to discrete, event-specific crises.

One way of doing this might be to examine the share that goes to instruments such as CERF Rapid Response, the Start Funds or the IFRC DREF that are typically associated with event-specific crisis response. Other ways may involve more forensic examination of historic funding allocations to isolate the event-specific spikes with potential for risk-informed action. Subsequently, the percentages outlined above, could be applied to this event-specific part of the humanitarian portfolio, to set realistic and achievable targets to advance the anticipatory action and disaster risk finance agenda.

5.2 SETTING FINANCIAL TARGETS

The potential for risk-informed humanitarian action as outlined in this report throws into stark relief the inadequacy of the 1-2% of funding currently being allocated to these approaches (whether through anticipatory action or pre-arranged disaster risk finance).[94] It is clear that there is scope to do more. Nonetheless, particular caution must be taken when interpreting the analysis above in the context of setting financial targets, for example when committing a percentage of a humanitarian budget towards such approaches.

If a crisis event falls into the category of 'forecastable' it does not mean that the entire budget for that crisis should go towards anticipation.

The lead times to implement mitigative actions on the basis of a forecast can often be quite short. For example, amongst the operational examples reviewed for this paper these often tended to be around 7-10 days lead time for a flood, 3-5 days for a cyclone, 3-7 days for a heat or cold wave and up to several months for a drought.[95] Therefore, the likelihood is that the absorption capacity within the lead time is limited. The translation of what is or isn't in principle 'forecastable' into a financial target will therefore vary widely depending on the hazard and the context.

Similarly, a crisis that can in principle be modelled, is unlikely to benefit from the full volume of funding required being pre-arranged and financed according to hard triggers.

Disaster risk finance is typically deployed to improve the speed and predictability of assistance in the early stages of new and emerging crises, it is part of a toolbox of risk management and is not intended to fund the full response.[96] For example, a US$ 19.3 million Caribbean Catastrophe Risk Insurance Facility (CCRIF) pay-out for a 2017 hurricane in Dominica represented just 1.5% of the costs incurred, which is fairly typical for these kinds of instruments.[97] Caution must be taken in translating what is 'modellable' into what this means for targets for pre-arranged crisis finance.

94 Weingärtner, L. and Spencer, A. (2019) *Mapping financial flows to humanitarian crises*. Financial flows mapping: The potential for a risk finance facility for civil society. Paper 1. London: ODI and Start Network.

95 For example see *Trigger database - Anticipation Hub (anticipation-hub.org)*

96 Cummins, D. and Mahul, O. (2009) *Catastrophe Risk Financing in Developing Countries: Principles for Public Intervention*. Washington, D.C.: World Bank.

97 Sharma-Khushal, S., Schalatek, L., Singh, H. and White, H. (2022) *The Loss and Damage Facility. Why and How*. Discussion Paper. CAN International; Christian Aid; Heinrich Böll Stiftung (Washington, DC); Practical Action; Stamp Out Poverty.

Finally, it is important to note the costs of building anticipatory systems and how to leverage value for money.

As outlined in Chapter 2, there is no off-the-shelf solution for anticipatory action; every risk information source requires some degree of customisation to tailor it to the vulnerabilities and priorities of a particular context. This can sometimes be considered a costly exercise, particularly for hazards (like cyclones) in which the lead time is a matter of days, limiting the capacity for mitigative action. The analysis above shows that 11-32% (median 22%) of crises can be both forecasted and baseline risk modelled. There are significant overlaps in the process and capacities required for anticipatory action and pre-arranged crisis finance (see Figure 1), so there is a strong value for money argument to do both together where that potential exists. There are encouraging efforts to increase synergies for example through the _Anticipation Hub working group on Anticipation and Disaster Risk Finance_, as well as operational examples of this through _Start Network's Start Ready_ mechanism.

5.3 EVOLVING CAPABILITIES AND SHIFTING GOALPOSTS

With constant advances in science and technology, the scenarios and categorisations of crises in different geographies are constantly shifting.

This is a moveable feast – what is difficult to model or impossible to forecast today, may be predictable to a higher degree 10 years from now. Cat models that exist for specific hazards in some countries today may not have been operational a decade ago. The hope is that more and more crises will become 'forecastable' and 'modellable' over time, particularly as public-private partnerships like the Insurance Development Forum push for more open risk modelling.[98]

However, climate change creates its own challenges for risk analysis, as the past is no longer a good indicator of what we can expect in years to come.

Therefore, predicting the likelihood of future extreme events based on how frequently they occurred in the past raises the strong possibility of significant underestimation.[99] However, the climate conditioning of risk models, in which climate science is integrated into future simulations is becoming more commonplace and indeed required, allowing for some degree of adjustment to be applied based on projections such as those by the Intergovernmental Panel on Climate Change (IPCC).[100]

Targets should be seen as moveable rather than static.

The challenge of the humanitarian community is to harness the science and technology that exists to allow us to predict and prepare ahead of escalating crisis risks, whilst also retaining the capacities to respond to highly complex, interconnected and/or unprecedented events.

98   The ESG Insurer (2021) _GRMA can "help build trust and confidence" in risk transfer._ The Insurer News, 10 November.
99   Hagenlocher, M., Cotti, D., Cissé, J.D., Garschagen, M., Harb, M., Kaiser, D., Kreft, S., Reith, J., Seifert, V., Sett, D., Zwick, A. (2020)
         Disaster risk and readiness for insurance solutions in small island developing states. Report No. 26. Bonn: United Nations University Institute for Environment and Human Security (UNU-EHS).
100 Moody, N., Fraser, S., Miles, K. and Schneider, J. (2020) _The Development Impact of Risk Analytics. A call to action for public and private collaboration_. Insurance Development Forum;
         and Taylor, H. (2021) _NASDAQ and Climate Conditioned Cat Models For CBES_. Fathom Newsroom: Company updates, 13 September.

06 CONCLUSIONS & RECOMMENDATIONS

Woman using a restored hand pump to collect water, Start Fund Nepal
© Start Fund Nepal

A more efficient and effective humanitarian system requires anticipatory action and so there is growing momentum to better understand and scale this work. When the humanitarian system is able to truly embrace a systemic shift from reacting to crises, to considering and acting on escalating risks, success may mean we can no longer 'see' this work because it is fully integrated into the wider disaster risk management system in which it operates, or even better, we may not be able to 'see' particular crises because they no longer feature on the humanitarian caseload.

For now, as humanitarians seek to move towards this ambition, it is important to have a clearer understanding of what can be anticipated, and to what degree. This can inform much needed discussions on targets in order to secure the necessary political commitments to establish and embed risk-informed approaches within the wider humanitarian system. *Currently, funding committed towards such approaches does not match existing abilities to model and forecast crises and does not reflect the potential for improving the timeliness and predictability of humanitarian action.*

THE FOLLOWING RECOMMENDATIONS HAVE BEEN HIGHLIGHTED FOR DONORS AND POLICYMAKERS TO GUIDE THE SETTING OF TARGETS FOR ANTICIPATORY ACTION:

01 **Scale up funding going towards anticipatory action and pre-arranged crisis finance to take advantage of the potential as outlined in this analysis.** The potential for risk-informed humanitarian action throws into stark relief the inadequacy of the 1-2% of funding currently being allocated to these approaches. Improve understanding of how much donor funding is currently going to anticipatory action, such as the German and UK governments' recent commitment to develop a methodology to establish a baseline of their individual funding for anticipatory action in partnership with the Centre for Disaster Protection.[101]

02 **Support and encourage research to better understand and map existing risk models, event forecasts, and their current skill**. Encourage open risk modelling systems, which enable access to global and local risk data,[102] including risk data which utilises community knowledge, and models across all sectors. This should contribute to a better understanding of what success for anticipatory action could look like.

03 **Maximise the opportunities where anticipatory action and disaster risk financing can be deployed in tandem and by different types of actors** (i.e. national governments, UN agencies, civil society, etc). This can ensure that investments into risk-information and planning achieve maximum value for money benefits, and that pre-arranged finance for anticipatory action is organised as effectively and efficiently as possible. The latter can be achieved for example by supporting efforts such as risk pooling, which ensures that anticipatory action funding isn't sitting around unused for a potential future event.

04 **Recognise the limits of risk-informed action as not all risks can be predicted with sufficient certainty to warrant funding and action, or the lead time for anticipatory action may be very short.** Funding targets should reflect this to manage expectations and to ensure realistic and achievable goals so as to progress this agenda.

05 **Set funding targets by considering development, climate and humanitarian funding portfolios to better reflect the nexus that this work falls within.** Acknowledge that anticipatory action and pre-arranged disaster risk finance operates within a continuum and ensure that funding for this work is complementing and connected to these wider risk management efforts.

06 **Support humanitarian agencies, particularly at the local level, to ensure operational readiness so that timely financing translates into faster and more effective support to at-risk communities.** Ensure that risk information is accessible to local actors, and that funding is reaching those community-level actors who are well positioned to implement these approaches in a timely and contextually appropriate way.

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101 Federal Foreign Office (2022) *G7 Foreign Ministers' Statement on Strengthening Anticipatory Action in Humanitarian Assistance*. Press release, 13 May.
102 *https://gca.org/wp-content/uploads/2019/07/Insurance-for-climate-adaptation_Opportunities-and-Limitations.pdf*.

Start Network is a global network of more than 50 non-governmental organisations, working across six continents. The aim of the network is to tackle what it sees are the biggest systemic problems in the humanitarian action sector and to transform humanitarian action through fast funding, early action, innovation and locally led action

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